Local Heritage in the Changing Tropics: Innovative Strategies for Natural Resource Management and Control

Greg Dicum

Follow this and additional works at: https://elischolar.library.yale.edu/yale_fes_bulletin

Part of the Environmental Sciences Commons, and the Forest Sciences Commons

Recommended Citation

https://elischolar.library.yale.edu/yale_fes_bulletin/102
Local Heritage in the Changing Tropics: Innovative Strategies for Natural Resource Management and Control

Greg Dicum, Editor
The Yale School of Forestry and Environmental Studies Bulletin Series, begun in 1912, issues faculty and student monographs, symposia and workshop proceedings, and other reports on an occasional basis. To order copies of this or other Yale F&ES Bulletins, contact:

Publications
Yale School of Forestry and Environmental Studies
Sage Hall
205 Prospect Street
New Haven CT 06511
USA

Volume Editor  Greg Dicum
Bulletin Editor  Joseph Miller
Director of Communications  Jane Coppock
Design  R. Richard Solaski
Cover  The Reconciliation Through Music, by Marina Mendez Cruz of Corazones Valientes
Production  Yale University MIS Publishing
Paper  Mohawk Superfine, Softwhite recycled, 24 lb. writing, smooth, acid free

Bulletin Number 98
ISSN 0361-4425
CODEN BYSSDM
©1995 Yale University
Permission is granted to reproduce this volume without prior written consent.

Portions of this Bulletin are available on the Internet from the Communications for a Sustainable Future Gopher Server at: csf.colorado.edu / Environment / International Society of Tropical Foresters
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>5</td>
</tr>
<tr>
<td>PREFACE</td>
<td>7</td>
</tr>
<tr>
<td>FOREWORD</td>
<td>8</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>9</td>
</tr>
<tr>
<td>KEYNOTE ADDRESS</td>
<td></td>
</tr>
<tr>
<td>Big Conservation and Little Conservation: Collaboration in Managing Global and Local Heritage</td>
<td>13</td>
</tr>
<tr>
<td>Janis B. Alcorn</td>
<td></td>
</tr>
<tr>
<td>SECTION I: LEGAL STRUCTURES AND LOCAL RECOGNITION</td>
<td>31</td>
</tr>
<tr>
<td>Community Resources in Borneo: Failure of the Concept of Common Property and its Implications for the Conservation of Forest Resources and the Protection of Indigenous Land Rights</td>
<td>32</td>
</tr>
<tr>
<td>George N. Appell</td>
<td>53</td>
</tr>
<tr>
<td>George Appell Working Group</td>
<td></td>
</tr>
<tr>
<td>The Area de Protección de Fauna y Flora Yum Balam: The Initiation and Challenges of a Development Program for the Communities and the Environment in the Maya Zone of Northern Quintana Roo</td>
<td>57</td>
</tr>
<tr>
<td>Sebastián Poot Balam</td>
<td>63</td>
</tr>
<tr>
<td>Sebastián Poot Working Group</td>
<td></td>
</tr>
<tr>
<td>The Panará: Indigenous Territory and Environmental Protection in the Amazon</td>
<td>66</td>
</tr>
<tr>
<td>Stephan Schwartzman</td>
<td>83</td>
</tr>
<tr>
<td>Stephan Schwartzman Working Group</td>
<td></td>
</tr>
<tr>
<td>Indigenous Politics and “Local Heritage” in the 1990s: Shifting Concepts of Land Use, Land Tenure, and Self</td>
<td>86</td>
</tr>
<tr>
<td>Theodore Macdonald</td>
<td>99</td>
</tr>
<tr>
<td>Theodore Macdonald Working Group</td>
<td></td>
</tr>
<tr>
<td>SECTION II: CONSTRUCTIVE MARKET PARTICIPATION</td>
<td>104</td>
</tr>
<tr>
<td>The Experience of the Alto Juruá Extractive Reserve with Vegetal Leather: Engaging Forest Product Markets for the Survival of Ecosystems and Cultures</td>
<td>105</td>
</tr>
<tr>
<td>Chico Ginú</td>
<td>109</td>
</tr>
<tr>
<td>Chico Ginú Working Group</td>
<td></td>
</tr>
</tbody>
</table>
Contents

Neoliberal Ecopolitics and Indigenous Peoples: The Kayapo, The “Rainforest Harvest,” and The Body Shop
Terence Turner

Terence Turner Working Group

Building Markets for Non-Timber Forest Products: Challenges and a Few Lessons Learned
Sharon Flynn

Sharon Flynn Working Group

Global Trade and the Rainforests: Corporate Growth vs Indigenous Prosperity in Tropical Countries
John W. Friede

John Friede Working Group

SECTION III: INFORMATION TECHNOLOGIES

Appropriate Geomatic Technology for Local Earth Observation
Peter Poole

Peter Poole Working Group

The Role of Environmental NGOs in the Changing Tropics: Networking for Community Empowerment
Jose Roberto Borges

Jose Borges Working Group

Knowledge and Information Resources for Local and Traditional Natural Resource Users: Networking and Conferencing Systems, the Internet, Online Services, Libraries, and Information Centers
Richard Labelle

Richard Labelle Working Group

Indigenous Land Use Mapping in Central America
Mac Chapin

Mac Chapin Working Group
Acknowledgments

An undertaking of the scale of the 1995 ISTF conference is impossible without the dedication and commitment of numerous competent and hard-working individuals. The three days of the conference itself, in which 150 people came to listen to and to exchange ideas with 13 speakers, was the culmination of a year of hard work on the part of the Conference Committee. Together with the many people who came together to execute the conference weekend, we were able to treat participants from around the world to a very successful and very worthwhile gathering. Those primarily responsible for this success are listed below — each one’s contribution was vital in its own way, and each, we hope, came away from this experience enriched.

SPONSORS

The Tropical Resources Institute and The Dean’s Office at the Yale School of Forestry and Environmental Studies
The Weyerhaeuser Center for Forest Resource Management and Policy Studies at Yale F&ES
The International Society of Tropical Foresters
The Society of American Foresters, Yale Student Chapter
Déjà Shoe
Corazones Valientes

FACULTY ADVISORS

Dr. Mark S. Ashton, Assistant Professor of Silviculture,
Yale School of Forestry and Environmental Studies
Dr. Joseph A. Miller, Lecturer in Forest History,
Yale School of Forestry and Environmental Studies

CONFERENCE ORGANIZING COMMITTEE

Karen Beard, Rachel Byard, Ronald Cherry, Greg Dicum, Gary Dunning, Andreas Eicher, Cesar Flores, Derek Halberg, Chris Hopkins, Andrea Kivi, Lydia Olander, Richard Payne, Cathryn Poff, Walter Salazar, Robin Sears, Austin Troy, Sudha Vasan
CONFERENCE ASSISTANTS


SUPPORT THROUGHOUT

Jake Kosek, Nina Luttinger, Jim Spencer, Chris Woodward

ADMINISTRATIVE SUPPORT

Jane Coppock, Christina Cromley, Carolyn Falls, Ada Foley, Lucinda Gall
Preface

It was with great pleasure that I welcomed the participants to the Conference on “Local Heritage in the Changing Tropics,” as I do now the readers of these proceedings. The conference and the proceedings are products of our School, and they exemplify our mission and our commitment to pursuing it.

The theme and composition of the conference are explicitly interdisciplinary, reflecting the central theme of the Yale School of Forestry and Environmental Studies. Today’s natural resource challenges demand an interdisciplinary approach. A full understanding of the issues can be derived only through an exploration of the ecological, socio-economic, political and cultural dimensions of the problem. In our School, we view natural resource problems as human problems. Our students are trained that way, giving them the interdisciplinary framework for professional effectiveness.

“Local Heritage in the Changing Tropics” is the most recent in a series of conferences organized by our student chapter of the ISTF. This series represents a highly valued tradition, in which our students develop the conference’s theme, identify and engage speakers, make all arrangements, raise funds, hold the conference and help produce the proceedings. The students do everything with no more than seed funding and cheerleading from the faculty. The results underscore the quality, professionalism and enthusiasm of our excellent students. I warmly congratulate them on a job very well done.

These proceedings are being published as part of the School’s renewed Bulletin series, which has recorded and disseminated projects of special interest generated by faculty or students in the School on an occasional basis for nearly a century. I am pleased to note the reactivation of the series, which is a particularly appropriate outlet for these proceedings.

Jared L. Cohon, Dean
Yale School of Forestry and Environmental Studies
Foreword

I was directed by the President of the International Society of Tropical Foresters, Dr. Warren Doolittle, to let the ISTF Student Chapter Members know that we appreciate the work that goes into the several activities that have been accomplished by the Yale Chapter. The recent conferences, including the conference on Timber Certification held last year and this conference on Local Heritage, are areas that need discussion and are fora to help industry, environmental groups, and government employees more fully understand the issues and activities taking place in tropical forests.

We compliment the Yale Student Chapter for undertaking and carrying out these activities.

RECENT ACTIVITIES OF THE ISTF

We have invested in computer capability to help keep membership records more current and to help us lower the costs of publishing the three versions of the ISTF News.

We are developing a new consultants roster for ISTF members. ISTF had this service for members several years ago; however, it became too cumbersome to maintain the records by hand. The computer capability will allow us to maintain the roster and make rapid searches when requests for consultants are received.

Late last year ISTF and SAF entered into an agreement with the United Nations Food and Agriculture Organization (FAO) to establish a center in Bethesda, Maryland to print and distribute FAO’s Forests, Trees, and People Project (FTPP) Newsletter in North America and the English-speaking portion of the Caribbean. The center is called NACARCE — North American and Caribbean Regional Center, English.

Another big undertaking is the Secretariat responsibilities for the International Union of Societies of Foresters (IUSF). This Secretariat was transferred to the United States from Australia. It will be located at the Society of American Foresters (SAF) headquarters for the next five years. ISTF is deeply involved with this activity along with SAF.

You may know that one of your professors — Dr. John Gordon — was elected President of IUSF at the world meeting held in Anchorage, Alaska last September. The organization is made up of Forestry Society members from around the world.

We at ISTF hope this conference will set the stage for integration of information developed into future tropical forest management discussions.

Rodney F. Young
ISTF Volunteer
Introduction

Tropical ecosystems are today burdened by human activity as never before. Centuries of accelerating exploitation have led to the current situation in which natural areas shrink daily in the face of changing human populations, shifting political structures, and increasing resource use. As these areas are consumed by uncontrolled change, so too are destroyed cultures and resource use practices that have often been in place for millennia.

In recent years, international concern has mounted in response to the destruction of cultures and associated natural resource use systems at the economic frontier between the global economy and traditional societies. Local peoples’ groups have forged new alliances amongst themselves and with global partners to assert customary resource control. Constructive alternatives to the victimization of market newcomers as well as the amelioration of long standing inequities faced by “traditional” resource users are being developed in diverse settings by indigenous groups, labor organizations, non-governmental organizations (NGOs), research institutions, governments, and other entities.

In February 1995, the Yale F&ES Student Chapter of the International Society of Tropical Foresters brought together 150 students, professionals, community leaders, and academics from diverse fields related to tropical natural resource use and rights for a conference entitled “Local Heritage in the Changing Tropics: Innovative Strategies for Natural Resource Management and Control.” By drawing conference speakers and participants from all levels of this process and from all parts of the globe, we hoped to chart a broad vision for the future of our biological and cultural heritage and to foster communication among workers from various fields and regions.

The conference provided an opportunity for speakers to share their work with others, and the working groups that followed each presentation provided a forum for a lively and constructive exploration of the issues. Though each participant brought a different set of viewpoints and experiences to these meetings, several overarching themes emerged.

During the course of the weekend, many grappled with trying to come up with an operational definition of “Local.” It was, and remains, a problematic word because we were using it as a euphemism: when we said “Local,” we were often speaking of spatially small communities — of remote villages held together by tight familial, cultural, and occupational ties. Nevertheless, it was not readily apparent what constitutes “Localness.” As the weekend progressed, it became clear that “Localness” is not merely an issue of spatial scale. We often spoke of “Indigenous” groups, but in the context of tropical natural resource users, this too tells only half the story.
Throughout the weekend, we had been discussing issues of space. We quickly went beyond physical space to examine political, cultural, economic, institutional, and even cyber spaces. The parts of these various species of space that we were interested in were the edges: the frontiers or borders. This is obvious in the case of the auto-lideración in Venezuela that Peter Poole is assisting — but it is equally the case in, for example, the defense of market spaces against multinationals pushing their way in under the WTO that John Friede chronicles. In every presentation, the collective discourse concerned the demarcation and defense of the space (in all senses) that is today inhabited by some of the last remaining guilds of people directly and immediately connected to their resource bases.

This of course begs the question: why are these frontiers threatened? The answer is that since the maturation of industrial culture, there has been a steady increase in the space demanded and held exclusively by this culture. This has always been at the expense of those who do not have the industrial wedge driven between them and their environment. It has been an inexorable process, and the activities that we discussed all seek to moderate the process of the growth of industrial culture. I use the word “moderate” rather than “stop” because much of what we discussed concerned helping groups occupy spaces in terms that industrial culture will respect — essentially such projects bring groups inside industrial space, but on their own terms. Examples include George Appell’s cogent critique of the common property concept, Sharon Flynn’s rigorous marketing approach, Peter Poole’s geomatic work, and, in particular, Mac Chapin’s mapping projects, which translate information into codes understood and accepted by industrial culture.

By adopting roles of advocacy or proactive outreach to those on the other side of the econotone, these people are helping to mitigate situations that have, traditionally, ended in what can only be described as crimes against humanity. As inextricable members of industrial culture, doing nothing is complicity.

This defense of space — these border wars — are everywhere, and exist in all sorts of different spaces. When we discussed “Localness,” we were talking about spaces, physical and figurative, that have not been wholly consumed by industrial culture.

An encouraging new trend was evident throughout the conference weekend. In cases where Indigenous and other local groups are able to assert political power, they are moving into a position to contract advisory services from outside experts — having occupied their space they are now dealing with what to do with it. This was exemplified by Chico Ginú’s initiatives with the Alto Juruá Extractive Reserve as well Sebastián Poot’s experience with the Yum Balam
Protected Area, both of which represent the fruition of this phenomenon. And it is ongoing. As Steve Schwartzman relates, the Panarà are now beginning to move into this phase, and, as Ted Macdonald explains, indigenous groups in the Ecuadorian Amazon have been moving toward it for some time. Nevertheless, George Appell reminds us, this development is largely limited to Latin America and the self-determination of marginalized peoples around the world remains a struggle for survival.

Another important theme that emerged from the discussions was the crucial role played by knowledge and information. While the endemic knowledge of many groups is clearly comprehensive and important, they are often ill-equipped to interact with entities from industrial culture because of a lack of information about this realm. This theme came up frequently, and was a major component of the discussions led by Terry Turner, Beto Borges, and Richard Labelle. Providing such information-based services can help to make dealing as equals a reality for marginalized groups while at the same time making available the resources for informed self-determination. As Sebastián Poot pointed out, this sort of information and technical assistance is a crucial ingredient in the political legitimization of traditional natural resource management regimes.

Although it is true that I found out about Richard Labelle’s work by surfing the Internet, his point that Computer Mediated Communications are simply a tool was an excellent one — the communications I had with him were qualitatively the same as my inviting Sharon Flynn to this conference while we were in the back of a bouncing pickup truck in the Petén. Networking and communication is what makes a community. We can see this clearly in Beto Borges’ work in Brazil, and, even, in the activities that took place in New Haven during the conference weekend. We were, and continue to be, operating as a community.

Throughout the weekend, the discussion returned again and again to the tension between “Little” and “Big” Conservation broached by Janis Alcorn in the keynote address. The many examples of dedicated and participatory work brought forth during the conference demonstrated that this tension need not be the undoing of the promising partnership between indigenous knowledge systems and western notions of natural resource “conservation.” By helping marginalized natural resource users to gain control of their natural heritage, we are helping to make the world a livable place for all of humanity.

These proceedings are organized along the same lines as the conference weekend itself. Following this introductory section, which includes the keynote address, the text is divided into three
thematic sections. Section I deals with problems in codifying traditional land and resource rights into national law and the concomitant problems in transforming ill-defined “groups” into legal entities. Section II examines market participation as a means to exercise local control of natural resources by constructively channeling market penetration toward goals of improved standards of living, political empowerment, cultural preservation, and the conservation of biodiversity. Section III explores ways that marginalized people are using geomatic and communication technologies to press claims and to conserve customary knowledge.

It is our hope that the readers of these Proceedings will find them informative and useful and that, in some way, our collective endeavor will contribute to a humane and sustainable future.

Greg Dicum, Editor
New Haven, Connecticut
Keynote Address

Big Conservation and Little Conservation: Collaboration in Managing Global and Local Heritage

Janis B. Alcorn
Biodiversity Support Program
World Wildlife Fund

ABSTRACT
Conservation initiatives around the world are separated into two distinct scales: Big Conservation, of the sort practiced by big international NGOs, and Little Conservation, the type undertaken by millions of anonymous local people. Big Conservation tends to ignore the efforts of Little Conservation, but, ultimately, it is Little Conservation that makes the long-term difference. If conservation in general is to be successful, then the two branches must learn to work together — to marry the money and technical knowledge of Big Conservation with the commitment and traditional knowledge of Little Conservation. This will require a fundamental change in the way Big Conservation operates, since it must give up a measure of control over the conservation process to local people.

The topic of this conference — Innovative Strategies for Natural Resource Management and Control — is a primary concern to many of us working in conservation outside academia. The conference focuses on three themes: legal recognition of group rights and ownership; management of market forces; and information technologies in service of communities. These three themes surface around the globe when conservationists and resource managers discuss “integrated conservation and development” projects. But these themes surface less often in mainstream conservation discussions.

Recently there have been efforts to reform conservation; these efforts spring from a spectrum of critiques. On one side are those who are trying to get conservationists to question whether the end justifies the means in their work, and to recognize and alter the human rights abuses and other imperialistic aspects of conservation. In the middle are those who seek to integrate sustainable development with conservation, such as IUCN’s Strategy for Caring for the Earth. Others in the middle are working to join the interests of the state and local people to work on specific management problems, such as the new Joint Forest Management strategies in India and other countries. At the other end of the spectrum, there is a re-trenchment of standard approaches — led by traditionalist biology-centric conservationists, with the most radical of them calling for creation of a UN Nature Keeping Force modeled after the UN Peace Keeping Force. Under this proposal, biologists would monitor park management globally, and, if national governments failed to protect parks, the biologists would call in the UN forces to keep people out of those parks. As you discuss the three themes of focus in your...
conference, I would like for you to keep this bigger picture in mind as a context for your discussions over the next two days.

Your conference focuses on local heritage. Global heritage is the most familiar buzzword today. All heritage is ultimately local, however. The popular cry is “think globally, act locally,” but the catch is that in order to act locally, you have to think locally.

We who think globally are what Raymond Dasmann has called “Biosphere People.” We Biosphere People seldom know much about the rivers, forests, hills and grasslands in whose midst we live. We locate ourselves in grids on paper maps or round metal globes. We don’t know the names of the plants around us. We don’t know their natural rhythms. We don’t know the history of the places where we walk. Land and resources are viewed as commodities. We extract resources from around the world; we wear shirts from Bangladesh, jeans from Burma, belts from Guatemala, and shoes from China. We eat grapes from Chile, pineapples from Sri Lanka, and oranges from Brazil. Our companies extract oil from Papua New Guinea and Ecuador, and gold from Indonesia. Profits made on our stock market come in from points all around the world. And we talk about our global heritage. The environmental and social impacts of our use of these resources is invisible to us. There is no feedback that affects our immediate lives. We are the elite, we live in the “North,” and in the capital cities of every country in the world. We are not well-informed for thinking locally, or well-organized for acting locally — particularly in someone else’s locale.

Dasmann contrasted Biosphere People with “Ecosystem People.” Ecosystem People know and depend on their local place — their livelihood and well-being depends on their immediate environment. Their identity and their history are part of the landscape. They locate themselves in relation to natural features in the landscape and the history associated with those features. Feedback from overuse of the resource base is seen and felt in the immediate environment. Ecosystem People think locally, and they are well-informed to think locally. Indigenous peoples are Ecosystem People. Ecosystem People are often invisible to Biosphere People.

Ecosystem People are now being recognized as “stakeholders.” But as one of the conferences speakers, Peter Poole, once joked to me: a stakeholder is anyone who shows up carrying a T-Bone steak in each hand. In other words, anyone who is powerful enough to claim rights can be a stakeholder. The critical point is that Ecosystem People are stakeholders with prior rights to the resource in which others are claiming a stake. Biosphere People, however, generally ignore that issue. When they do invite Ecosystem People to the table, too often it is to extract their local knowledge to be used for

The popular cry is “think globally, act locally,” but the catch is that in order to act locally, you have to think locally.
decision-making by Biosphere interests. Certainly this division into two groups is an oversimplification of a complex set of relationships. But the contrast is heuristically useful for defining the problem and the ends of the spectrum.

Let me turn now to a related contrasting pair — what I’m calling Big Conservation and Little Conservation. But before I talk about what’s big and what’s little, let me quickly define what I mean by conservation. Conservation is a social and political process by which natural resources, including forests, are managed to maintain biodiversity. Biological information and socio-political information are both important for conservation decision-making. Most of this information is held by local Ecosystem People. This is not to say that all information is held locally; it isn’t.

**BIG CONSERVATION**

What is Big Conservation? Big Conservation is global. It is big organizations and big institutions located in big office buildings in capital cities: the Global Environmental Facility (GEF) and the World Wildlife Fund, Conservation International, IUCN, the Asian Wetland Bureau, and the African Wildlife Foundation, for example. Big Conservation is the concern of BINGOS — Big International NGOs — and their local partner NGOs. Big Conservation is the concern of Government Forest Ministries and Park Departments. Big Conservation is big money. And Big Conservation is powerful. It is funded by multilateral development banks, bilateral donors, and wealthy foundations. Big Conservation is dominated by biologists with interests in global heritage. Big Conservation works for the “preservation” of habitats and ecosystems in areas distant from the homes of Big Conservationists. Big Conservation depends on funding and political commitment from bureaucracies and foreign interests distant from the field sites where projects, and biodiversity, are located. Big Conservation is what most people think of when they think of conservation.

The primary strategy of traditional Big Conservation is park and forest reserve systems, where areas are managed under plans drawn up by foreign consultants and nationals from capital cities. Some have referred to this as the “bullets and barbed wire” approach to conservation. Some elements inside Big Conservation have embraced efforts to develop a less combative relationship with people who live in or near parks and reserves, but the government agencies that carry out Big Conservation generally tend to view local people as their primary enemy, because they define local people as the major cause of park degradation.
Big Conservation’s discourse and fund raising focuses on large, attractive animals: the panda, the tiger, the elephant, and the jaguar. The vision of Big Conservation does not include local people, and only peripherally any people at all — usually only the biologist/discoverer who interprets the scenery for us as he/she passes through it. Photographs and discussions focus on wild forests or beautiful reefs with no people in the picture — that is the desired goal of conservation. In Big Conservation discourse, local citizens are generally ignored, or called “populations” that threaten the “carrying capacity” of an ecosystem — in language derived from animal population biology. The organizations and institutions of local people are invisible to Big Conservation. Local people are viewed as a threat; they are the poachers, the slash and burners, the interlopers, and the squatters who must be removed from biodiverse areas.

The standard political modus operandi of Big Conservation has been to ignore local rights and claim the priority of global or national interests as moral vindication for their actions. Big Conservationists also claim the high ground, because they claim they are not representing themselves but rather speaking on behalf of biodiversity, representing the interests of wild animals who have no voice. Increased international funding for Big Conservation is being used to increase the area under Parks and Protected Areas — primarily in areas occupied, used and claimed by Indigenous peoples. In this context, Big Conservation has been criticized for legitimizing states’ use of military force against Indigenous minorities. Conservationists are providing arms to governments and backing the states’ moral rights to seize lands and punish those who resist their will. By supporting the consolidation of state control over natural resources, Big Conservation may very well be undermining its own interests, given the other interests of state-linked elites who have logged and mined biodiverse areas for profits.

Environmentalists in the South have accused Big Conservation of turning the chicken-coop over to the foxes. They question whether Northern Big Conservation’s action is simply done in ignorance, or is another extractive activity by the North. But this North-South discourse has generally ignored Little Conservation, and has instead focused on the faults of Big Conservation.

LITTLE CONSERVATION

What is Little Conservation? Little Conservation occurs as individuals make choices in their day-to-day lives. On the one hand, those decisions depend on an individual’s ecological knowledge and his or her skills in applying the patterns established by traditional resource management systems. On the other hand, the decisions are
made within the opportunities and constraints imposed by the communities’ tenurial institutions — the rules that control resource access and use. Traditional farming is often viewed as requiring limited skill or controls. This is far from true. Traditional systems of slash and burn agriculture manage ecological processes through institutions with rituals, rules about allocation of lands, time-limits on land use, and a focus on maintaining proper social relationships within the community.

Little Conservation is a largely invisible influence on those who carry it out. It is embedded in local dress and metaphors, in the “right way” to do agriculture, and in ethical relationships with ancestors. It is passed on to children in songs, dances, and histories; it is part of local cultural heritage.

Little Conservation is visible in the community near Madang, Papua New Guinea, where people hand-feed rare, endemic fish in a bend in the river and limit their offtake to a few individuals for a once-a-year ritual. Little Conservation is the community that is petitioning the government to give it “conservation area” status so their forest won’t be logged under the concession granted by the government to an outside logging company. It’s the local farmer or housewife who takes an interest in trees or herbs that are becoming rare and take it upon themselves to maintain these species on their property or to argue in community meetings that everyone needs to spare them when they plan agricultural clearings. Little Conservation is at work in the traditional fishing ban following a reef owner’s death in the South Pacific nations and in the mangrove harvest ban applied when a community recognizes that overharvesting has occurred. It’s in the Thai Karen admonition that if you can hear a monkey’s call echo when you are in your field, you have cleared too much forest. It’s the decision made by the forest farmer to spare a rare tree and avoid steep slopes and greenbelts along waterways as he selects a field site to initiate a traditional agroforestry system. Little Conservation operates when village elders restrict access to certain forests or decide to allow agricultural land to return to forest when it’s clear that forests have shrunk too small.

Little Conservation is seen in the Bushmen’s managed burns used to maintain a patchwork of wild resources. Locally the burns are small but together they spread across the breadth of the Kalahari Desert. Little Conservation is seen in the managed forests that Chuck Peters has been studying in Borneo. Such biodiverse managed forests are found across the expanse of Borneo in mosaics with patches of communities’ natural forest reserves.

The small acts of individuals and communities guided by Little Conservation add up to big, geographically visible patterns. Little
Conservation operates in perhaps 85% of the world’s high biodiversity areas, including the areas where Protected Areas overlap with the territories of Indigenous Peoples. Big Conservation, in contrast, is carried out in a much, much smaller area. Little Conservation, then, is geographically bigger than Big Conservation.

So why have I called it Little Conservation? It is little, because globally it has been invisible, and because it is done by politically weak groups. The institutions that support Little Conservation have no office buildings, no named organizations. For example, village organizations meet under trees to make decisions. When no one is meeting, there is no visible sign of the organization — just a spot under a tree, or empty stools or mats in the corner of a communal house. They don’t look important, and it’s easy for outsiders to miss their presence. The institutions that support Little Conservation spread across national boundaries, but they aren’t recognized by any international or national body, and they have seldom been studied by outsiders.

Little Conservation is little because its budget is tiny. It is a non-entity on the global donor scene. There is virtually no funding for Little Conservation. The World Bank’s leaders have never heard of it, and those who practice Little Conservation have often never heard of The World Bank. Little Conservation doesn’t require large sums of money; it is locally supported by cultural values, community-based institutions, and traditional resource management systems adapted to local conditions. At the national level, it is supported by appropriate policies that enable the local support mechanisms to continue to function under changing circumstances.

Finally, Little Conservation is little because Little Conservation is local. Its vision is limited to the local situation, a small area. There are no grand designs for, or assessments of, others’ situations. Strategies and methods do not reflect an appreciation for regional or global trends, and they rarely foresee the impacts of “modernization” before they happen.

Little Conservation traditions are faced with many, many stresses and threats including: escalating pressure from outsiders who are logging, extracting other resources, or settling on community lands; state expropriation of lands and resources; demographic changes; cultural change; failure to educate young people in traditional ecological knowledge; missionaries; community institutions that are unable to interface effectively with outsiders; technological changes; and crop changes.

They are also threatened by Big Conservation which has, with all good intentions for saving global heritage, contributed to the destruction of Little Conservation by ejecting local peoples from areas
that were rightfully theirs. Big Conservationists have made enemies of those who could be their allies. Instead of making allies with those who face off against loggers to defend their community forests, Big Conservation has instead too often sided with elites who share interests with loggers and other resource miners.

COLLABORATION IN CONSERVATION

Over the past decade, Little Conservation has become more visible on the world stage. Community groups have increasingly joined together in federations, unions, and other “peoples’ organizations” to assert their rights. They have come to Big Conservation to seek assistance on what they see to be a common agenda. For example, in Northern Thailand, a group of villages have fought to protect their watershed forests from local logging interests. They were successful in that local fight, but then the government declared their forests part of a new national park. The village-based organization then sought help from a Bangkok-based environmental NGO. The Bangkok-based national NGO assisted them, but the international NGOs backed the park’s creation. Big Conservationists often question local motivations, while at the same time they overlook the motivations driving the state. The biology-centric elements of Big Conservation deny the existence of Little Conservation and complain about others’ blind belief in the Noble Savage, yet they do not critically evaluate their own beliefs in the Noble State.

There is, as I mentioned earlier, a movement within Big Conservation to “involve local people” in conservation, although this involvement often does not build on Little Conservation practices or beliefs. There are, however, two levels of potentially synergistic collaboration between Big and Little Conservation: site specific collaboration, and policy level collaboration. Site specific collaboration includes a variety of possibilities including integrated conservation and development projects (ICADs), co-management, and technical assistance. Let me briefly discuss each one.

ICADs are based on the premise that unless people affected by the establishment of protected areas feel that they are benefiting in some way from protected areas, they will not be deterred from unsustainable resource extraction in those protected areas. Most ICADs are very local and seek to find the one or two incentives that will keep people out of the park; or to find cash replacements for the resources people have lost to the park.

Park managers often allow residents from outside the park to benefit by harvesting specific resources. For example, residents outside several protected areas in India and Nepal are allowed to cut
grass inside the protected area for a short period each year. In addition, the park offers tree seedlings for planting on private land to replace wood lost when villagers were denied access to firewood gathering inside the park. ICADs aim to provide development benefits to people who have been removed from a park or who live next to a park in exchange for agreements that residents will not clear agricultural lands inside the protected areas. ICADs promote cottage industries such as beekeeping, distribute hybrid seeds, improve water supplies, and initiate ecotourism to generate local revenue. One of your conference themes involves market development for local products. This strategy is usually, but not always, implemented in association with ICAD projects.

The general consensus is that existing ICADs have seldom been successful, however. Analysts have concluded that the primary reason for their limited success is that ICADs have not achieved true participation. Rather, they involve people as passive recipients or implementors of projects, not as active partners in design or evaluation of those projects. Hence, they seldom build on Little Conservation practices and traditions.

A second area for local collaboration is co-management. Some level of co-management is occurring in some protected areas today. This decision to work with local people generally depends on decisions by individual park or reserve managers who see the value of recognizing the rights of local, traditional owners of the resources, and are committed to develop ways to integrate them into park management decision-making. These are generally ad hoc local efforts that are not officially, or legally, recognized as policy. For example, in Indonesia, WWF is working with government agencies and park residents in East Kalimantan to use participatory mapping so that local people can identify their traditional resource zones for designation as the park’s multiple use areas, and designate the areas they would like to see remain “core areas” untouched by outsiders or themselves.

Thirdly, at the local site level, Big Conservationists offer technical assistance. Technical assistance can strengthen local people’s capacity to monitor and manage the biodiversity on their lands. For example, the Xavante in Brazil requested that WWF assist them to develop ways to survey and monitor game populations. In the Yukon, wildlife department researchers gather information from communities on the status of fur-bearing wildlife in each area, analyze regional patterns, and then provide advice on management based on trends they find in the data. In these cases, native communities are not forced to follow the advice; the decision is left in their court. Technical assistance may also be provided in terms of legal
assistance to fight illegal logging or encroachment on Indigenous territories. This may take the form of direct legal assistance, background legal research or acquisition of satellite imagery as evidence.

STRENGTHENING CONSERVATION

How can Big Conservation use its power in the policy arena to support Little Conservation to reach their common objectives? I’ve identified five areas where policy reform could strengthen conservation: a) tenurial rights b) border defense c) true co-management d) land use planning and e) educational rights. Many strategies are used in each of these five areas. All five make use of mapping and other information management technologies — one of the themes of your conference.

The first is tenure. Tenure is often discussed in these types of fora as an incentive for investment in long-term resource management. Community-based tenure and group ownership is more than an incentive, however. I think one of the best ways to conceptualize the important role of tenure is to think of property rights systems as “shells” in the computer jargon sense. Tenurial shells provide the superstructure within which activities are developed and operate — a sort of inner environment within the larger world. The tenurial shell is a constraining and enabling structure linked in very specific ways to the larger “operating system” in which the shell is embedded. Local ecosystems and societies have survived and flourished within the protective, enabling shells of community-based tenurial systems. Communities are not homogeneous, happy, harmonious entities. Tenurial shells form crucibles within which local conflict and differing strategies can bubble together in the context of local cultural and ecological factors, without being destabilized by external factors.

External recognition and legal protection of community-based property rights regimes strengthens the protective border. In many cases, if the protective tenurial shell were removed, individuals and institutions in the outer milieu would destabilize and destroy the community-based organizations, their institutions, and their resources inside the shell.

Second, border defense is supported by community-based tenurial systems and community-based border surveillance, as well as by policies that commit the power of the state to defend the borders of indigenous peoples’ territories.

Third, national-level policies that legitimize and support true co-management are critical tools whereby states can reach conservation objectives through partnerships with communities. Co-management policies enable the state to maintain a certain degree of control over
resource management decisions on private lands.

What is true co-management? It ranges from direct co-management of specific protected areas by joint boards to situations where government’s role is simply recognition of local community-based organizations or indigenous peoples’ rights to make their own management decisions. In most spheres, this falls within specific geographic areas variously known as semi-autonomous regions, campesino ecological reserves, comarcas, Indigenous reserves, etc. In the latter cases, the state is not directly co-managing, but indirectly co-managing through regulations that govern such entities and supporting those entities by defending their rights and borders.

Examples of direct co-management can be found in Australia and England. In Australia, Aboriginal land owners and the ANPWS run parks through a joint management arrangement. Aborigines serve on Management Boards and Consultative Committees which prepare long-term plans, as well as participate in day-to-day decision-making. In England, parks are planned around residents’ livelihood activities and residents participate in park management decisions. Most British parks are under private ownership and the National Park Authority must cooperate with landowners to achieve its goals. Management Agreements establish Farm Conservation Plans, and provide financial incentives and compensation for agreed-upon management practices.

Outside of protected areas, co-management of a nation’s resources can take all sorts of innovative forms. For example, appropriate subsidies for crops traditionally grown in biodiverse systems, such as rubber, “rustic” coffee and rattan gardens, can assist subsistence farmers to keep biodiversity in the landscape. Local communities need the biodiverse structure for the foods, medicines, craft materials, and other benefits provided by the multiple species systems in the short term; and the nation needs the biodiverse landscape for the storage of genetic resources and provision of ecosystem services for the long-term.

True co-management means recognizing the authority and institutions of peoples that do not share the urban-based culture of Biosphere People. It means surrendering dominance over interaction between our cultures to a process where our goals are put at risk by entering dialogue and collaboration. The direction and outcome is not foregone, and this frightens Big Conservation. Therefore, most co-management is not true co-management, but some sort of arrangement that yields no decision-making authority. For example, people are threatened with eviction if they do not sign compacts under terms dictated by Big Conservation, and this is called “co-management.”
Fourth, policy changes that enable local land use planning are critically important, especially in places where tenurial rights are claimed by a state that is not likely to give up those rights to communities. Land use planning should be done in a way that focuses on making evident the existing plans that local people have for their lands and resources. Government often assumes that people have no plans and uses poor data to make broad land use decisions that are imposed on people, or are used to separate the people from their resources.

Lastly, but equally important, are education rights. In most countries, current national policy actively supports efforts to “mainstream” Indigenous cultures, thereby destroying their cultures and identity, and their Little Conservation traditions. The Karen whose homes and forests have been enclosed by the Thung Yai Wildlife Sanctuary in Thailand, for example, are seeking assistance in developing a program to educate their children in traditional knowledge and beliefs so they will be able to continue to take proper care of the forest left to them by their ancestors. But it is likely they will instead be resettled away from their forest homeland under a pending GEF project.

FINDING LITTLE CONSERVATION

If Little Conservation is so pervasive, why has it been so seldom documented? There are several reasons: government agency workers are educated to ignore it; urban-based researchers have been oblivious to it — it was not part of their upbringing, and it has not been something they were looking for. Biologists have sought information about specific species preferably as far away from people as possible, and anthropologists have focused on social behavior and rituals, but generally ignored their impact on the natural environment. Nevertheless, whenever researchers have looked for it, they have found Little Conservation all around the world.

It is prudent to assume that, if wild species are observed in the vicinity of peoples’ homes and fields — whether you are looking at primarily agricultural landscapes with trees and other wild species on its edges, or at situations in the rainforest where farmers’ fields are interspersed with large areas of wild resources in primary and secondary forests — then those people are in some way responsible for the presence of those species. This is rather like being presumed innocent unless proven guilty. Currently, researchers take the opposite view; they blame the people they see in the immediate environment for what is absent, when in fact the primary blame should often be placed at the door of policies and actions of distant elites.

As is true of most things deeply embedded in a peoples’ way of
life, to discover Little Conservation, the researcher can’t just ask “do you do conservation?” The answer would probably be “no.” As a Karen headman asked me as we discussed conservation, “Why do you people put things in boxes? Taking care of the forest is part of our way of living, it isn’t something we do separately.” When researchers carry out Participatory Rural Appraisals (PRAs), they often get hints of Little Conservation, but because PRAs rarely focus on wild species, these aspects of resource management are seldom discussed. Participatory mapping and Land Use Planning exercises, and investigations into land use decision-making, are most likely to yield clues leading to the discovery of Little Conservation activities and the stresses faced by Little Conservation.

There are ways to discover Little Conservation, and if government agencies really wanted to survey and map it, they could. But it is highly unlikely this will happen, especially given the fact that in many countries governments refuse to acknowledge even the presence of indigenous peoples in forested areas.

When local people are engaged in conservation projects, it is possible to discover where Little Conservation is working in that particular ecosystem, where its vestiges linger, and where it isn’t operating at all. Discovery does not mean that outsiders should document completely the knowledge and functioning of Little Conservation. This would be a waste of time and a misdirection of resources, because the operation of Little Conservation does not depend on documenting the tradition. The continued functioning of Little Conservation depends on external support for the institutions and local organizations through which Little Conservation functions. This is where the investment of time and effort should be made.

Every day, local organizations and individuals are making decisions about resource use and resource management. Their decisions impact local and global heritage. Those local decisions will continue to be made regardless of the declarations and plans made by Biosphere People at national and international levels. If Little Conservation dies out as a guiding force in local decision making, then we all lose. Therefore, regardless of the conservation tactic of choice, it is a tactical error to deny local decision-making organizations participation at the conservation decision-making table. Some would argue that in the end, when conservationists play the role of gatekeepers, they are involved in a charade because the only decisions that really matter in the long run are those that are made by local people who live in the midst of biodiversity.

When conservationists play the role of gatekeepers, they are involved in a charade because the only decisions that really matter in the long run are those that are made by local people who live in the midst of biodiversity.
BROTHERS AND SISTERS

Allow me to end with a metaphorical summary. Big Conservation is like a big brother, sure that he knows what needs to be done and eager to get others to do it. He isn’t eager to listen to his siblings’ points of view. A big brother is physically more powerful and has access to greater resources than his younger siblings. Little Conservation is like little brothers and sisters; they have many different points of view and ideas, are less powerful and have fewer resources to assert them. They have a hard time getting a word in edgewise when their big brother is talking. In the end, though, there are many more younger brothers and sisters, so they are the ones who make most of the day-to-day decisions out of view of their big brother.

To carry the analogy to its conclusion: if families act on their common interests, they prosper. If Big and Little Conservation can work together, if Big Conservation makes its resources available to Little Conservation — teaching mapping, wildlife monitoring, population biology surveys, and other technical skills — and if Big Conservationists will listen to the concerns of Little Conservationists, if the “conservation community” formed by Big Conservation groups will accept those who practice Little Conservation as members of their community, and listen to their voices, then there is a better chance that local heritage will be there for the future children of both Biosphere People and Ecosystem People. The cases you will be discussing during this conference, and this conference itself, are evidence that steps are being taken to bring Little and Big Conservation together to tackle the local and global problems presented by failure to manage resources for the future.

As those of you in the audience carry out work for Big Conservation at the Forest Service or at Washington-based think tanks, or consult for the World Bank and other big agencies, you will be faced with the challenge of finding ways to strengthen Little Conservation and ways to avoid destroying it under the momentum of Big Conservation. This is very difficult, because by acting within the structures created by the dominant paradigm of Big Conservation, your choices for action will be limited. I urge you to do your best to develop innovative strategies by remembering Little Conservation and Local Heritage as you sit around decision-making tables, as you design plans for massive resource management projects, as you engage in policy debates, and as you negotiate international agreements on behalf of those with interests in global heritage. Thank you.
QUESTION & ANSWER SESSION

Q: To what extent do you think that the history of conservation here in the United States is influencing the focus on Big Conservation in the international arena?

JA: Well, I think it is a great deal, even though the situations can be completely different. For example, I remember one person from Thailand who went to Idaho to be trained in park management. He found that the month-long course was totally irrelevant to his situation. He said that they didn’t even talk about the problems that he faced at home. At the same time, you can go back to Thailand, to the person who is the head of the park department, and he will say “Well, we want to do things like you do in your country — you have national parks, you have Indigenous reservations — we want to take the people and stick them in reservations, like you do, and we want to have national parks with no people in them, like you do.”

Part of it is also because of status. Modern, western behavior has high status — it is not considered high status to have some weeds growing in your garden that happen to be useful. It’s a whole way of looking at the world. I’ve often heard it mentioned in the African context, where you have people who come from a background that includes these Little Conservation measures, yet they are trained as scientists to look at the world in a way that does not allow them to integrate their experience.

Q: Working in the Biodiversity Support Program at the World Wildlife Fund, you are embedded in Big Conservation, and I’d like to know how successful you have been in bringing these concerns into the decision making process at the WWF. Also, have you seen a change within the institution?

JA: Yes, that’s right, WWF is right in the middle of Big Conservation, but, I would add, WWF has one of the better records in terms of paying attention to local people. Once you’re actually doing a project, you realize that you have to deal with the people who live there — you can’t avoid it. You have to understand that WWF is the world’s largest conservation organization and it contains all of these different points of view. Of course there is some strain within WWF — right now a retrenchment of the biology-centric point of view is taking place. Many people feel it went too far; towards thinking about only people and not thinking about conservation. As an individual it’s hard to do anything, but if you are part of a critical group within an organization, you can make some changes.
Q: In light of what Big Conservation has accomplished, and the factors that influenced it in its beginnings, don’t you think you are being a little hard on it?

JA: Well, in the European, and in particular in the English tradition, it was the King’s or the government’s role to undertake these measures. This was extended to the colonies, and it has a political heritage that extends beyond the biologists — it was the milieu in which they were operating. Nevertheless, I think most of Big Conservation still holds this idea about the role of local people in conservation. I’m pointing out that if they don’t perceive their situation, they will lose the initiative and fail to reach their goals, even though it’s so incredibly messy to work with people.

Q: How can you reconcile conservation in an area when this means foregoing a lot of valuable resources? How can you foster Little Conservation when exploitation can produce a lot of cash in the short term?

JA: Well, for example, in Papua New Guinea, the Global Environmental Fund is undertaking a big program to create conservation areas that incorporate alternative sources of income for people. There, only 3% of the land belongs to the government — the rest belongs to the clans — so they have to come up with some alternatives. The problem is there aren’t a lot of things to offer people in the short term. There’s been talk of conservation packages whereby if the world wants Papua New Guinea to conserve its forests, it is going to have to pay.

It depends on the case. When ICAD siting is being discussed, one of the problems has been that they aren’t always located in the most biodiverse places. They’ve been attacked because they have gone after places where people are already interested in conservation, regardless of what they have to conserve. Should Big Conservation be investing in these cases, or should they be looking for cases where more biodiversity is at stake? For example, the Karen — they want to stay where they are, they want to conserve their forests, and they have a lot of diversity. It has to do with searching for sites on the one hand, but there are also policy level actions that can make a lot of difference. In Mexico, for example, the subsidy to coffee led directly to the loss of a lot of forest.

Q: How do you see conservation initiatives developing in the context of the conflict between local groups and the dominant structures that see community organization as a threat in their programs to control ethnic minorities — the Karen being opposed by Burmese military groups, for example?
JA: You can't predict what can happen. You can't count on any country in this world being here for very long, and that's why I think Little Conservation is so important. As governments come and go and borders change, unless Little Conservation is still hanging in there, there are no parks. Look what happened in Rwanda — early on the ruling group put anti-personnel mines around the edges of the parks and then sent their logging companies in to take the trees down. They were the only ones who could do the logging because they knew where they had put their mines.

In South East Asia, the environment is a democracy issue. It is around environmental issues that democracy is often happening. It can be a threat to the state, but it varies. In Zimbabwe, for example, they've bought into Little Conservation.

In the Karen case, they are likely to stay there because they are very good friends with the Thai military, unusual as it sounds. The thing is, you live in this time, and you have to act in this time. You’re not living a hundred years from now, so you have a choice. If you think the situation is hopeless and you don’t do anything, then you have to live with the fact that you didn’t do anything.

Q: I think part of the cause of the conflict between Big Conservation and Little Conservation is that Little Conservation sometimes fails to conserve. How do you see Little Conservation working in the many situations of overuse and degradation?

JA: Well, Big Conservation has failed, big time, as well. You can’t forget that — the Rwanda case is a big time failure. Both sides fail sometimes, but it’s a continuous thing — it happens daily. Conservation is never done. It’s part of making a living; it resides in the choices you make every day. You need to respond to what’s going on around you — things go bad; things get better. That’s one reason why protected areas that are co-managed are usually in areas where there aren’t a lot of people. That makes it possible to figure out ways to work with those people. It’s not necessary to remove them and create enemies who will move back in as soon as the government changes.

Q: What specific structures can help co-management succeed?

JA: I think you can only decide that locally. If you know what’s going on at a lot of different sites in a country, then you can start to come up with some policy solutions. The main one is tenure. If you give people the right to defend their territory, though, they can make decisions that you may not like. Some places they will and some places they won’t — you can’t
predict for sure what will happen in any case.

When you're talking about implementing co-management, you also need to realize that the parties that you are asking to work together have often been antagonists. In India, for example, where the idea of Joint Forest Management is starting to be recognized by the government — now they're even talking about Joint Protected Areas Management — there is a situation where a trained paramilitary force has created a situation where the local people are their enemies; people have been killed in boundary fights. An effort has to be made to change that situation through retraining and figure out local ways to effect conflict resolution. You need to regain some kind of trust between the parties to make it work.

Q: A lot of this talk has focused on the World Wildlife Fund, which seems to be pretty advanced in this area. Other large conservation organizations, like The Nature Conservancy, Conservation International, and the Wildlife Society very rarely work at the local level…

JA: I won't say in which organization this took place, and they all have their bad GEF projects, but in this particular one, this NGO was defending its GEF project that involved working with local people, and I asked “How did you know what you needed to do to work with the local people?” He said “I didn’t do any surveys, I didn’t do any kind of program to find this out — I have lived there for five years, and I just know what they need.” The biologists need to work with social scientists. So, how many social scientists are there at WWF? Two, maybe three. If you want to look at where they’re really taking it seriously, you need to look at where they hire people who know something about the social sciences, and there aren’t many.

The other part of it is they can’t raise money that way. They raise money with big, pretty animals. It’s too complicated to explain to the average American why they should contribute money to Little Conservation.

Little Conservation doesn’t need money as much as it needs time — time to develop its goals and objectives. It needs some kind of a shell that protects it from the forces that are pushing it in various directions while the community discusses and figures out what it wants.

Big Conservation and Little Conservation have a lot more in common than they realize, and there’s a lot of opportunity for them to work together, but often they don’t because Big Conservation sides with the state and brings in the guards.
Q: How do you think the actions of multinational corporations and their support of trade liberalization interact with Big Conservation, particularly at the crossroads where a lot of these companies sit on the boards of organizations like WWF? As someone trying to move forward, how can these organizations use this situation to, in turn, influence the behavior of the corporations?

JA: It’s very hard to make those changes. For example, with NAFTA, there was a strong feeling of support within WWF, but WWF Mexico was strongly against it. Those political decisions are made beyond our ability to influence. They are compromised to some degree by their funding sources. On the other hand, as you say, they could be able to influence them. WWF is working with Chevron in Papua New Guinea and Greenpeace has raised a lot of questions about that. Chevron is expecting that if there is a major oil spill in those swamps, then they will have some cover. On the other hand, Chevron has hired anthropologists and has gone way out of their way to do a lot — it’s quite incredible what they’ve invested in conservation and in working with local people there. Nevertheless, I don’t think that conservation organizations have the kind of clout necessary to create broad changes in multinational behavior.

Janis B. Alcorn

An ethnobotanist with 25 years’ experience in international development and research in ecology, indigenous natural resource management systems, and conservation of biodiversity in Asia and the Americas, Dr. Alcorn began her career in 1970, as a Peace Corps volunteer working in village level development in India. She received her PhD in Botany, with a minor in Anthropology, from the University of Texas at Austin in 1982. From 1985 to 1988, she was on the faculty of the Biology Department at Tulane University. In 1988, she was awarded a two year AAAS Diplomacy Fellowship to serve as an environment and natural resources advisor to USAID. In 1991, she assumed her current position as Program Manager for Asia and Pacific in the Biodiversity Support Program (BSP) at World Wildlife Fund in Washington, DC. Dr. Alcorn developed and directs BSP’s Peoples and Forests Program, the goal of which is to use mapping techniques to promote recognition of indigenous peoples’ tenurial rights and to support community-based land use planning in order to strengthen biodiversity conservation in the forested areas of Insular Southeast Asia.
Community Resources in Borneo: Failure of the Concept of Common Property and its Implications for the Conservation of Forest Resources and the Protection of Indigenous Land Rights

G.N. Appell
Senior Research Associate
Department of Anthropology, Brandeis University
President, Borneo Research Council

ABSTRACT
Historically, western colonizers have engaged indigenous lands as though they were open access resources. This misconception has persisted in the concept of the commons, which has been used to explain natural resource degradation in many parts of the world. In many cases, however, degradation has taken place as the result of inappropriate attempts to devolve jointly held rights into individually held private property. Examples from Borneo illustrate several cases in which various forms of jural aggregates have responded to changes in resource use. Reinterpreted through the concept of emergent structuralism, such cases serve as useful lessons for future Indigenous land management initiatives, and suggest some remedies for current problems.

HISTORICAL CONFUSION AND HEGEMONIC DISCOURSE: THE CONTAMINATED CONCEPTS OF COMMON PROPERTY AND PRIVATE PROPERTY

Western thought since the time of Aristotle has been muddled by the lack of conceptual clarity over the ownership of land and productive resources. It has tended to focus on the false contrast between private property and common property, without clearly distinguishing what either of these mean.

The term common property in everyday usage has been historically applied to two different property regimes: *res nullis*, resources that are open access and are not encumbered by any property rights, and resources that have multiple users. This term contrasted with private property, which sometimes referred to a resource held by an individual and at other times referred to property that was not state owned. The term common property as *res nullis* was applied to Indigenous populations by explorers and colonists, who did not bother to determine what native rights over property existed. Its usage signaled that the resource was open for the taking by the intruders. This misconception and confusion has continued to this day.

An anonymous author reporting on his 1496 voyage to America wrote that the Indians owned everything in common (see Arber 1885; also see Zolla 1973). James Hall, writing in 1835, used the same discourse: the Indians “must, indeed, be tutored into a sense of private property, for... the insecurity of property, or rather the entire
absence of all ideas of property, is the chief cause of their barbarisms” (Pearce 1988, 72). Thus, these folk categories of common and private property carry with them an unexamined load of assumptions and ideological contaminants which make them useless for understanding property relations in other societies (for example see Johannes 1977, 121).

Peters (1987) reports that in southern Africa these colonial models of preferred land tenure have permeated the debate in Botswana, distorting the actual incidents of local ownership:

“The belief that certain collective or corporate forms of social organization and property relations stifled initiative and/or encouraged lackadaisical and careless use of resources was generally held by colonial officers, missionaries, and traders. It was embedded in an ideology that regarded private ownership as the superior opposite of communal forms, and whose premises were based on a long history of Western thought. It was through this lens that problems were diagnosed... Through that same lens, prescriptions for change were conceived and announced: the introduction of new forms of exclusive land tenure and the private ownership of wells. With hindsight, one can see that these were constructions of a reality projected by the colonialists themselves, who persistently tried to squeeze African landholding systems into a model that set private and individual in opposition to communal and group.” (Peters 1987, 179)

Claims of the efficiencies of private property over what was called “communal” or “common property” are still part of the discourse of neocolonial elites in Third World countries who want to rationalize, on their terms, the economies of peripheral peoples. This universally occurs without sufficient knowledge of the peripheral property systems or their relationship to environmental processes. These are self-serving claims by the new elites of former colonies who want to privatize land tenure systems for the benefit of themselves and other members of the economic and political centers who have the cash to invest in former tribal lands. This has contributed to a growth of landlessness, and repeats what happened to the Indians of North America (see Appell 1985a, 1991b).
HARDIN AND HIS CRITICS

In 1968 Hardin changed the focus of the debate claiming that the “commons” as a form of property ownership resulted in environmental destruction and degradation. Although Hardin’s article was conceptually flawed and empirically wrong, it provided the impetus for refocusing the age-old arguments about what modality of property ownership, on the one hand, would provide the most efficient use of a resource with the least externalities and, on the other, what modality promoted the most desirable forms of liberty and social justice. The concern over efficiency was now shifted to how property modalities contribute to environmental degradation and the social costs of previously unexamined externalities to open access resources such as air and water.

Hardin’s critics (Appell 1993; Berkes 1989; Berkes, Feeny, McCay, and Acheson 1989; Bromley and Cernea 1989; Feeny, Berkes, McCay, and Acheson 1990; McCay and Acheson 1987; National Resource Council 1986) have shown that Hardin’s argument was historically uninformed, sociologically naïve, economically simplistic, and just plain wrong. They have also provided important case studies showing the value of Indigenous knowledge of resource utilization and that traditional forms of ownership have efficiencies which in many cases are more productive and suitable to the local environment than planned development interventions (see also Johannes 1977; McKean 1986; Berkes 1985).

Neither Hardin nor his critics have yet to develop the observational procedures to identify precisely either the jural status of the property right owners or the nature of the rights held. The issue that I will address here is the fundamental logical flaw that occurs in Hardin’s argument as well as in the rebuttals of his critics. That is, if a form of property ownership affects the productivity and conservation of a resource, then it is critical to identify precisely the property modality involved and specifically the locus of ownership before assessing its contribution to productivity and sustainability.

ANALYTICAL CRITIQUE OF THE DEFINITIONS OF “COMMON PROPERTY”

Let us now briefly analyze the recent usages of the term “common property” by Hardin’s critics, a discourse that has been confusing, hardly useful, and jurally uninformed.

Berkes, Feeny, McCay, and Acheson (1989; expanded in Feeny, Berkes, McCay, and Acheson 1990) define common property resources as a class of resources for which exclusion of potential users is difficult and costly and joint use involves subtractability in that each user is capable of subtracting from the welfare of others. The
The term common property resources is an oxymoron as resources and property are concepts of a different order, and, furthermore, the authors have included under this concept property modalities other than common property. Thus, their taxonomy of four basic property right modalities for common property resources includes: private property, a resource held by an individual or corporation; communal property, a resource held by an identifiable community of users; state property; and open access, a resource without well-defined property rights so that access is free and open to all. Although classed as property, open access turns out not to be property at all.

Bromley and Cernea (1989) also use the oxymoron of common property resources in their analysis of the problems of managing such resources and the failure of Hardin's logic. However, they, Hardin, and others (e.g. McCay and Acheson 1987) have frequently confused open access with "common property" modalities. They also distinguish four possible resource regimes: state property, private property, common property, and non-property, or open access.

Note that Bromley and Cernea contrast private property with common property. Yet they write (1989, 14): "Common property is in essence 'private' property for the group and in that sense it is a group decision regarding who shall be excluded."

These definitions of property modalities fail not only because they are contradictory and confusing, but largely because they do not distinguish whether the rights are held by individuals, as a jural aggregate or jural collectivity — as I shall explain — or held by a corporation, or by a corporate group. And they do not distinguish the types of rights held. Yet these distinctions are critical to the ultimate goal: the understanding of management forms and how they affect productivity and resource degradation.

Thus, these classifications need to be revised, as we shall now do, first looking at types of rights and then the nature of jural entities.

**FRAGMENTED OWNERSHIP: FORMS OF RIGHTS AND OBJECTS OF OWNERSHIP**

The concept of common property (when it does not refer to open access) is a form of multiple ownership. But how do we distinguish between the various forms of multiple ownership and determine the relationship between right holders? I propose a conceptual scheme that is universally applicable and forms a critical part of the observational procedures to determine the nature of property ownership.

When there are multiple interests of any kind in a property object, I refer to this as co-ownership. In co-ownership there is the
issue of whether each of the co-owners individually owns a right in the object or benefit stream from the object, or whether the co-owners share a single right. A shared right involves the ownership by all of a single right, as in partnerships (Salmond 1957, 306) and joint rights. Let's look at the Diagrams, in this case Co-ownership Form 1. And as we discuss these diagrams, I would appreciate it if any of you
would indicate which one diagrams the structure of a common property regime.

Please note two things. First, a shared right may occur in all the various forms, but I have not indicated it for purposes of simplicity. Second, jural entities holding rights may be individuals, corporate groups, or corporations. This variation has important implications for the management of the resources owned. But again for simplicity, I have not added this variable to the diagrams, which are only focusing on the various types and levels of rights in situations of co-ownership. We will discuss the various jural forms shortly.

When multiple rights exist in an object or benefit stream, two types may occur which I have termed parallel rights and stratified rights. The term parallel rights refers to the situation in which the co-owners hold identical interests. Such "co-owners have simultaneous interests in every portion of the thing, but no separate interest in any particular portion of it" (Cribbet 1975, 94). This is referred to as having an interest in undivided shares of the object.

In the instance of stratified rights, two or more jural entities hold interests of a different order in the same object. This is the case with villages in Borneo, where it is common for a village practicing swidden cultivation to hold residual rights to a distinct village reserve as a corporate group. Only the members of that village may cut their swiddens in that territory. The right to cut swiddens is a parallel right held in some Borneo societies by the individual members and in others by domestic families as corporate groups. The use rights over the area cut may be held only temporarily, lasting only until the last crops of that year are removed, or they may be durable in that they may be devised on other generations or held theoretically in perpetuity by the corporate domestic family.

Another example of both parallel and stratified rights is provided by interests among the Rungus of Borneo over those types of fruit trees that require care and cultivation. In this case the rights are held by individuals as a jural collectivity. All descendants of the original planter have parallel rights to collect the fruit. The descendant living closest to the tree takes care of it and has the prior rights to the first fruits in exchange for his care before he calls the other right holders to participate in collecting the fruit. These rights to fruit are consequently stratified. Parallel interests and stratified interests are thus not mutually exclusive. Each type of stratified interests over an object may also have co-owners who hold parallel rights or even a shared right. We shall discuss these cases in detail shortly.
Table 1: Comparison of Theoretical Distinctions When Applied to the Analysis of a Jural System

<table>
<thead>
<tr>
<th>Distinctions made by GNA</th>
<th>Corporations</th>
<th>Corporate social groupings</th>
<th>Natural Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Jural collectivities&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Jural aggregate&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ethnographic examples:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exists in perpetuity</td>
<td>General Electric</td>
<td>Iban <em>bilek</em>; Descent group with undivided rights over property</td>
<td>Descent group with rights held by members</td>
</tr>
<tr>
<td>Limited life</td>
<td>Corporation incorporated for limited life</td>
<td>Rungus domestic family&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Limited life property-focused social isolate</td>
</tr>
<tr>
<td>Traditional distinctions:</td>
<td>Corporations&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td>Natural Persons</td>
</tr>
<tr>
<td>Exists in perpetuity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited life</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Jural Collectivity: a social grouping in which interests are held in severalty by the individual members but whose social existence is recognized by the jural system in which it is lodged. The jural system thus allows a member of the social grouping to sue on behalf of the other members while still denying the group a separate jural status, a distinct jural personality.

<sup>b</sup> Jural Aggregate: a social grouping in which interests are held in severalty by the individual members whose social existence is not recognized by the jural system.

<sup>c</sup> The Rungus domestic family has a limited life but is a jural isolate in the Rungus jural system.

<sup>d</sup> Under the class of jural entities the two distinctions made by Appell, “corporations” and “corporate descent groups,” may include entities that exist in perpetuity as well as those that have a limited life. These features of duration of existence are not class-determining but are lower-level attributes that must nevertheless be included in the ethnographic description.
FORMS OF JURAL ENTITIES: THE LOCI OF PROPERTY RIGHTS

Let us briefly review. We have seen that the discourse that includes terms such as “common property” and “private property" is neither analytical nor scientific. It does not identify the types of rights nor the loci of rights. Instead this type of discourse is hegemonic and culture-bound to a particular ideological system of the West. As a result it distorts Indigenous systems of property. To prevent this we have presented a cross-culturally applicable grid of the various forms of ownership that gets to the meat of property relations.

I will now present an analytical grid of jural entities that is also cross-culturally applicable, and with this I hope we can put the coffin lid on the concepts of common and private property as useful for scientific discourse.

A jural entity, or jural isolate, is a social form that has the capacity to enter into jural relations, and thereby own property. The sum total of these capacities is referred to as the jural personality of that social form (Durham 1958). I have identified three universal forms: the individual, the corporate group, and the corporation (Appell 1974, 1976b, 1983, 1984; see Table One).

A corporate group is composed of a social grouping of natural persons that holds interests as an entity and not in severalty. A corporate group contrasts with a corporation in that a corporation is an artificial jural entity without a social counterpart. Neither the officers, nor the board of directors, nor the stockholders are the corporation.

Corporate groups must also be distinguished from those social groupings or other social forms in which rights to property are held by the individual members rather than by the group itself. Two types may occur: a jural aggregate or a jural collectivity. A jural aggregate is a social form in which the individual members hold the interests in severalty. It has no jural existence above and beyond its individual members; it cannot enter into jural relations. A jural collectivity is a social grouping in which interests are also held in severalty by the individual members, but it differs from a jural aggregate in that its sociality is recognized by the jural system in which it is lodged. Thus, the jural system permits a member of that social form to sue on behalf of the other members to facilitate jural actions while still denying the grouping a separate jural status; a distinct jural personality (see Appell 1976a, 1976b, 1983, 1984, 1991a, 1993).
JURAL AGGREGATES AND JURAL COLLECTIVITIES

Ethnographic materials from Borneo help to explicate the analysis presented to this point.

We will first look at jural aggregates and jural collectivities among the Rungus of northern Borneo (Appell 1971, 1974, 1976b), the members of which hold rights in severalty over fruit trees. This creates a jural form that I have called a tree-focused structural isolate (Appell 1983, 1984).

Rights to certain fruit trees are held individually by all the descendants of the original planter, as we have noted. I have referred to the rights in this system of co-ownership as parallel rights.

Those holding these rights are allowed to harvest fruit from the trees planted by an ancestor. This structural entity, composed of the co-right holders, forms a jural aggregate, for each of the right holders has to take jural action on his own to receive compensation if the fruit tree is destroyed.

There are other fruit trees with more valuable fruit that require guarding and cultivation both to ensure a good harvest and to prevent others than the descendants of the original planter from picking the fruit. The descendant living closest to the trees has the obligation to care for and guard these trees. In return he has the right to pick the first fruit, after which he must inform the other right holders to come, if they want, to take their share. The individual who guards the tree also has the obligation to bring a jural action for compensation if the tree is destroyed. He initiates this action on behalf of the other right holders, but they must be present at the time of the moot in order to be able to receive a proportion of
the settlement. This is a jural collectivity as one person can take jural action on behalf of the other members. But it is not a corporate group, for the group as an entity does not receive the compensation, only those members of the collectivity who are present at the settlement.

THE RUNGUS VILLAGE AS A CORPORATE GROUP: CIRCULATING USUFRUCT

We will now look at two types of land tenure in Borneo. There are a number of other types, but time requires our inquiry to focus only on two (but see Appell 1992).

The Rungus village holds residual rights over a clearly demarcated area, which I have called the village reserve. The village as a corporate entity is found universally among the Indigenous swidden cultivators in Borneo (see Appell 1986, 1992). Cultivation rights are limited to resident villagers. No permanent use rights, that is, devolvable use rights, may be created by cutting a section of the forest reserve for a swidden. Thus, any member family of the village may cut any part of the forest in the village reserve without seeking the permission of the prior cultivator of the area. These rights over an area exist until all the produce from the swidden has been harvested. I have termed this form circulating usufruct. The structure of this system fits Form Four in Figure 1.

If a family, for a variety of reasons, finds one village not to its liking, or cannot find a good place to make a swidden, it may leave and enter another village without any disabilities. Rights to entrance are not based on kinship; only the headman’s approval is needed to enter.

EMERGING NATURE OF THE JURAL PERSONALITY OF THE RUNGUS VILLAGE

We must now introduce an additional set of theoretical constructs on the developmental nature of property relations, one that I have termed “emergent structuralism.” No society is frozen in time. There is constant social change and self-transformation. If we conceive of a social system as consisting of the jural order, then by definition there is an opportunity structure. The jural structure not only defines the opportunities that it is permissible to exploit, but also provides the decision paths and techniques that lead to antisocial behavior in what I have termed the contrastructure. Decision making and transactions in the opportunity structure do not generate social forms, however. New social forms are the product of a second level order of events, a reflexive event by the members of the
society scanning their own opportunity structure for those changes in the activation of this order. This includes the pileup of decisions in one sector or the other and the differential exploitation of resources that threaten the society’s conceptions of equity. These new shifts in the opportunity structure are then encoded into the jural order by a legitimizing act or relegated to the contrastructure as deviant by a representative body of members. Thus, the forms of social systems are constantly emerging.

The problem of scarcity of land for the Rungus was not an issue until colonial government intervention. The British government took tracts of Rungus land for plantations, with the result that Rungus villages or their members had to relocate to other village areas. Then the government opened up the region to Chinese settlement, again with the loss of Rungus lands. This, along with population increase, put pressure on the land/population balance.

At some time after the British arrived, the Rungus response to growing scarcity of land was to make boundaries between villages more firm and explicit. In one case nonresidents who cut swiddens in the reserve of another village had their swiddens fired in secret by the headman of that village prior to their drying out, thus ruining them for farming. Finally, village headmen got together and decided that if any farming was done by nonresidents without permission, the village headman had the right to sue for a gong. Thus, growing pressure resulted in the elaboration of the jural personality of the village (see Appell 1985b, 1988).

Also about this time three villages whose territories backed up on a mountain decided to keep this area in primary forest and not cut it for swiddens. It provided needed raw materials for housing, granaries, etc. It furthermore protected the watershed of streams and rivers from which these villages got their water, which was critical as the Rungus area experiences a difficult dry season each year. Thus, what once was open access was turned into interests held corporately by each village over that section of the primary forest that backed up each village’s territory.

However, the policing of this reserve became difficult. When relatives of key men in the village cut the primary forest for swiddens in this reserve, it was difficult to prosecute them. At this point the Rungus took advantage of the plural legal system provided by the British. They had instituted new laws governing forest use while leaving certain disputes to be settled at the village level under the old customary laws. The Rungus arranged for this area of primary forest to be gazetted as a forest reserve so that the policing of it was turned over to the Forest Department.

After the creation of Malaysia and the departure of the British
colonial government, the new state government illegally gave this area out to Chinese for timber cutting, it is rumored, on the basis of a payoff to certain government officials. This produced an aggressive reaction by the Rungus in which the Chinese and the politicians involved were threatened. Cutting was stopped but only after much of this former reserve was destroyed.

At this point a division of opinion grew in the community: some wanted to let the cutting go on so that they would get the royalties; some wanted money to meet the schooling costs of their children; others wanted to use it for new consumables. However, a more influential section of the community resisted this, arguing that the loss to the environment was greater than the rewards that the individual families would obtain.

THE EROSION OF THE JURAL PERSONALITY OF THE VILLAGE

During the period of British colonialism, the Rungus land tenure system was disrupted by the view that the Rungus territory was underutilized, and this view was carried on by the succeeding post-colonial government. The British essentially viewed Rungus forested territory as res nullis — open access. In 1961 a British District Officer walked through the Rungus territory, along with a Chinese entrepreneur, and found what he thought was unoccupied forest. He was not able to read the forest cover to ascertain that what he saw was secondary forest recovering from prior swidden cultivation. And he did not realize that every inch of the territory was divided up between the various Rungus villages which had clear and distinct boundaries and which owned their reserves corporately. The British officer, furthermore, did not recognize the use rights of village members. As with the British government as a whole, his conceptual bias did not allow him to conceive of anything but individual title to land, and so pressure was put on the Rungus to apply to the government for individually titled and owned tracts of land in their village reserve. Neither the British government nor its post-colonial successor recognized the complex social system of the Rungus or their agroecology as stabilizing forces (Appell 1992). As a result of this, the jural personality of the village as a corporate land-holding entity has been diminished, which has also eroded the authority of the village headmen and the village moot. This has led to dispute over the uses of village forest reserves. Furthermore, when individuals obtain title to land, they sometimes sell their title to wealthy outsiders from the city who have sufficient cash reserves. This has now produced Rungus villages that no longer have their cultural integrity. As a result, there is a certain amount of tension between...
Rungus residents and outsiders and a growing disparity in ownership of land — the beginnings of a landless peasantry.

The failure of the British to recognize the Rungus system of land tenure has also led to environmental degradation. The Rungus had sacred groves around wet places and stream banks which were inhabited by potentially dangerous forest spirits. If the forest homes of these spirits were cut down, they would vent their anger on the intruder by causing him to become ill. With Christianization, this sanction was no longer viable. At the same time the British did not realize that these sacred groves existed so that in the surveying for land ownership the groves ended up in the individually held land lots. Since the groves formed a less immediately productive part of such land, many of them were cut down to plant permanent tree crops or vegetable gardens. As a result, the hydrological cycle of the region has been interrupted both by this and the intrusion into the forest reserve so that the usual dry season has been markedly extended. There are now major water shortages in the region (Appell). At the same time a variety of birds and animals formerly inhabiting the village reserves have disappeared and a number of tree and plant species can no longer be found. The failure to recognize the Indigenous system of land tenure and agroecology has not only resulted in jural and social disorganization but also environmental degradation.

If the present government would recognize the corporateness of the village, allowing no land to be sold to non-village members, the rapidly growing social disorganization, landlessness, and environmental degradation could be ameliorated.

DISCOVERY PROCEDURES

I have presented a conceptual framework to determine the nature of rights and their locus in Appell (1971). Let me briefly mention the three most important discovery procedures for filling the conceptual scheme with ethnographic content: the analysis of cases of conflicts; case materials on the transactions of rights; and the identification of what social entity has created the right and if not for himself or herself, for whom. Case materials must be collected on any conflict over rights or any jural actions taken to obtain indemnification for loss of rights on the destruction of property. Also, cases on the transactions of rights by sale, loan, or inheritance provide critical data. If an individual creates a right, for example, through his own work in planting fruit trees, one must determine whether he or she did this on behalf of the group of which he or she was a member (i.e. the family), or for himself or herself alone. This
can be determined by following who gets rights if the individual’s spouse dies, or if there is a divorce and a remarriage occurs involving additional children.

**THE KANTU’ DAYAK CASE**

The final example shows the adaptive responses to challenges of growing scarcity in the village reserve, which illustrates nicely the usefulness of the theory of emergent structuralism.

Dove (1985) provides the history of land tenure changes among the Kantu’ Dayak. In the beginning, the land tenure system was that of circulating usufruct similar to that of the Rungus. That is, each resident domestic family had the right to cultivate a swidden in any part of the forest in the village reserve that was unused, and the cutting of such a swidden did not establish permanent usufruct rights. The Kantu’ stated that as long as there was chronic warfare, rights over secondary forest were of little value. There was an adaptive value in the village being relatively mobile and able to advance or retreat as conditions warranted it. And because of warfare it was important that all the households farm near one another with their swiddens in a cluster. Finally, the exigencies of warfare placed a premium on primary forest, because primary forest swiddens minimized the need for weeding, which in turn lessened the defensive burden for the men and heightened their offensive capabilities.

The first modification of this system produced extended usufruct. If an omen was observed during the planting of a primary forest swidden, the household making the swidden was required to make an offering of one or more pigs. This then gave the household the prior right to farm that particular section of land once more at a time of its own choosing before the land reverted to the village reserve.

With the cessation of warfare, the next stage involved the development of devolvable usufruct in which households were able to claim permanent use rights to forest areas that they had cleared of primary forest. This developed for two reasons. First, the cessation of warfare and the removal of pressures against a more sedentary existence enabled the Kantu’ to start planting rubber groves. Second, the Kantu’ were surrounded on three sides by the Iban, who recognized such devolvable rights, and the Kantu’ followed suit so as not to be disadvantaged in any land disputes with the Iban.

Eventually, the population grew, putting additional pressures on the land. The Kantu’ land tenure system further developed in response to this. One change was the new customary law that any household on leaving a village had to forfeit their devolvable rights.
to secondary forest. Such vacated areas reverted to the status of primary forest. Devolvable rights could be reestablished by the household that first recut the forest. Any household that announced their intention to move was from that time on forbidden to sell its land rights.

But as land became more scarce this procedure led to many disputes among the households. As a result, the longhouse headmen began to take all such rights themselves and enjoyed them personally. Eventually the longhouse members began to resent the self-serving actions of the headmen. Customary law was again changed so that devolvable rights to land abandoned by a departing household reverted to the village reserve which household members could farm in rotation as circulating usufruct.

It is important to note that growing population pressure and outside markets did not lead to a shift toward individual ownership of land. Instead, the legal personality of the Kantu’ household, a corporate jural isolate, became stronger with the assumption of devolvable use rights. Also note that these rights are held by the household corporately, not by individuals, so that in this instance of divided title both use rights and the residuary rights of the village are held by jurally corporate groups. This suggests that many cases of the alleged “privatization” of land tenure may in fact be similar to this, but as interpreted through Western eyes, appear as a growth in individual ownership.

CONCLUSIONS

The ethnographic data from Borneo illustrate that the analytical concepts used in discussion of common property have to be revised so that they map accurately the local contours of property systems. For, as Netting writes, “A lack of understanding of the conceptions and operations of property systems in other societies is a frequent cause of conflict, injustice, and exploitation.” (Netting 1982, 451)

To provide this understanding I have presented cross-culturally applicable analytical techniques that enable identification of the jural entities that hold rights, the structure of those rights, and how they may be divided. And this has resulted in a conceptual framework that more adequately reflects Indigenous systems of property relations.

Furthermore, the Borneo data suggest that there is no necessary unilinear movement under scarcity from co-ownership to individual ownership. In the Kantu’ case the jural personality of the domestic unit as a corporately jural grouping has grown in response to scarcity and new markets.

But wherever there are multiple users of common pool re-
sources, some sort of control, or as Hunt (1990) has termed it, internal jurality, develops. This occurs even in situations of open access, as for example the rules of the Buffalo hunt that emerged among the Metis of Canada (Purich 1988). Sometimes the development of internal jurality is more successful than at other times, but it is always the natural product of group interactions, contrary to Hardin’s sociologically naïve claim. The problem is to determine the conditions under which internal jurality flourishes to provide the most efficient, sustaining use of common pool resources.

Thus, the ethnographic materials from Borneo illustrate that, with unimpeded opportunity, Indigenous societies, like most societies, have the capacity to respond to challenge. The Bornean societies we have discussed have tried to conserve their valuable resources and have adapted their jural systems to the new contingencies of the growing scarcity of resources and the development of outside markets. They can respond adaptively, unless they are overwhelmed by the demands for coping by imposed social change, or unless the external rules under which they must operate are so changed by the sociopolitical centers that the society’s adaptive capacities are overwhelmed.

The real tragedy occurs when outside interests attempt to rationalize the use of resources from their own self-centered, cultural perspective, ignoring the local jural system and ecological constraints. This results in the breakdown of the internal jurality, allowing major depletion and destruction of resources before any internal jurality has a chance to develop (see Bromley and Cernea 1989; Berkes 1986; Runge 1986; and Feeny, Berkes, McCoy, and Acheson 1990 for examples). This produces a growing social disorganization, with its concomitant social ills.

It is better to build on what is already there than to assume nothing exists.

QUESTION & ANSWER SESSION

Q: I’d like to ask you to elaborate about how the jural entities you described change over time in response to scarcity.

GA: Before the British arrived there was sufficient land, so the territorial boundaries between villages were not policed. Generally they were based around watersheds. Then, in the village where I work, the village from the other side of the watershed boundary came over and started cutting their swiddens in the customary land of this village. This had never been done before, so they didn’t know what to do, so at night one of the headmen went up and set fire to a swidden and wrecked it. This brought the thing to a head, and the headmen from the various villages sat down and
decided that no one could go over and cut in someone else’s territory without prior permission from the headmen. If they did, they’d be sued for a gong. Further rights of the villages were developed as a result of this, including ritual boundaries and so forth.

Q: What do you think the possibilities are for transferring or recognizing traditional legal processes by a national legal system?

GA: My experience is limited to Borneo, but I think some of the problems there are symptomatic of some more general difficulties. We train these elites, and they go out there, usually from the department of economics, and they have no idea what is going on at the village level. For example, I’m dealing with a guy who is native — he represents a native party — and he has no idea of the land tenure system of his own people. So he walks right in and develops projects that take over the land of villages and moves people in there, and puts up plantations and so on, and violates the village corporateness, which then leads to intrusion. There’s a pileup of capital in the centers — there’s cash — so they can come out to the peripheries and buy the land. This process slowly turns independent agriculturalists into landless wage laborers.

This happens only because the guys don’t know what’s going on, but they have a degree from Harvard, or Tufts — they have all the answers. For example, where I work they have beautiful basketry, yet this fellow brought in people from Thailand to teach them how to make basketry.

So, when governments are run by westernized elites who don’t know what’s going on at the bottom — in fact, they don’t want to know, because they’re on their way up the social scale — I just don’t know how you do it. It’s frustrating.

REFERENCES


———. 1992. The History of Research on Traditional Land


Feeny, David, Fikret Berkes, Bonnie J. McCay, and James M. Acheson. 1990. The Tragedy of the Commons: Twenty-Two


GEORGE N. APPELL
Senior Research Associate at the Department of Anthropology, Brandeis University; Founder and President, Borneo Research Council; Founder, Fund for Urgent Anthropological Research; Member, Commission for Human Rights, American Anthropological Association; Director, Sabah Oral Literature Project; Consultant in Organizational Design and Social Change. Dr. Appell’s field research involves: Rungus Dusun of Sabah, Malaysia; Bulusu’, East Kalimantan, Indonesia; Dogrib Indians, Northwest Territories of Canada.
The discussion in this group was wide-ranging and participatory. The following summary presents the topics covered and some relevant excerpts:

**Jake Kosek, Yale F&ES:** Could you clarify your critique of common property? It seems that this term can still be useful, for example in the case of a public highway that everyone uses but no one individual can claim to own.

**George Appell:** Well, let’s unpack the rights surrounding the highway. First there’s the state, which has certain residual rights over it. There are a whole bunch of people who have use rights, but these are varied. A regular motorist and a trucker, for example, have different use rights over the highway. Furthermore, in the case of an interstate, a federal road, it goes through counties, which also have certain rights. So it builds and builds and you can see that it gets really complex. Thinking of it as a common property resource actually hides what’s going on and the decisions that are being made. Calling something common property leaves it open to all sorts of misinterpretations and confusion — it doesn’t really tell you anything.

The term “common property” has been used for centuries to take away property from Indigenous groups, regardless of how this property was actually administered. Furthermore, the ideas of property are always in conflict. Private property versus what? What is private property? We don’t really know what it means, so we stay away from “private property” because it is such a loaded term.

**Celia Lowe, Yale Anthropology,** pointed out that the implications of having two separate terms is a complication of the debate because each “side” does not recognize the terms of the other.

Appell responded that if no one knows or agrees on the meaning of terms, then they do not tell us anything. Lowe pointed out that common property is often used by elites to legitimize actions. Appell added that common property has been used for many years to take away native property. Many people know the terms are out there and can be used to advantage and it is difficult to take that away from them.

**Wyatt Latimer, University of North Carolina,** asked Appell how he perceived traditional common lands in Europe. Appell said he thought that they were really owned by someone or collectively, they are...
administered by a set of rights. Latimer reflected on experience in Germany and in the southern United States with allotment of rights, in particular with hunting rights structures in which the hunter must ask for permission to hunt on another’s land, but the owner must give it.

Jonathan Scheuer, Moderator, Yale F&ES: In reference to your diagrams, it seems that your construct is based on English common law. In Figure 1, for example, you talk about unstratified jural rights with little dots signifying social relations. It seems to me that property regimes arise out of social relations, not out of the objects of concern, yet your construct seems to flip this around.

Appell: Yes, a lot of this stuff comes from Western (not necessarily European) jurisprudence. What you have raised is a major issue in the analysis of property relations. Everyone says that property relations have nothing to do with the commons; it has to do with social relations. But if you go to someone who happens to be carrying a knife in the commons — that’s his, and there’s a direct relationship between that object and the individual. So there’s a psychological relationship to objects, and when the jurists say that the relationship is only between people, and that the object should be played down, I’m uncomfortable with that, and I don’t know which way to go. It’s frankly an unresolved issue. Jurists say that people don’t own things, they own rights.

Amity Doolittle, Yale F&ES: I think it’s neither one nor the other, but rather it’s a continuum. In different situations the relationships may be the primary force, while in others it may be the objects, but they’re always both involved to some extent.

Jake Kosek said that common property is in a larger category because states need to simplify things in order to maintain control — and this is what makes it a political issue. He further wondered if the state would ever recognize the corporateness of the village. He thought that there exist so many rights that the state cannot deal with all of them.

There was a discussion of the treatment of the history of these rights in which Appell noted that guilt is wonderful way of creating change. Kosek said that we must go back to Bentham and define property rights; that we should look at historical context instead of generalities. Appell said we often forget that dealing with power and greed has been a major force in the history of property rights.

Sudah Vasan, Yale F&ES, wondered how the local property rights structure fits into capitalist society and what the connections are. Appell said he wasn’t sure they did, but there was an opportunity to
build on previous structures. Mathilde Snel, Clark University Geography, asked how one would go about creating these rights. Can we go into these communities and delineate their rights? A major recurring question was “How far back into history should we go?”

Appell responded that one should document as much as possible and go back as far as possible. He said that how the ritual realm fits into the property realm is often closely related. Kosek noted that we should listen to the different histories in different contexts.

MS: The problem is that you can take it back as far as you want, and that’s great for documentation, but that’s not today’s reality. Taking historic things into the realm of policy and decision making can be inappropriate. Often, taking things back to historical systems means relying on colonial records, which are often misconstructions.

Jonathan Scheuer pointed out that you can document everything but eventually you have to choose a perspective to offer and make statements of a certain point of view. He also said that how far back you go is a supreme political question, and Appell added that if anthropologists and other academics don’t decide, then politicians will.

GA: Let’s take the case of the Kayan land tenure in Borneo. They took over some Kayan land and they were going to pay them reparations. Now, under the Kayan land tenure system, there are village-owned residual rights, and corporately owned family use rights, and these use rights endure. That is, a family that establishes a swidden in an area of primary forest can continue to use this parcel and to pass it on to succeeding generations. But when the government paid reparations, they gave them to the individual leaders of the families. These families are corporate. It would be more appropriate to put these reparations in trust so the family could get an income from the money, just like they got an income from the land. That’s one use of figuring out the property relations before going in and imposing policies.

It would be absolutely better, of course, if the jural rights of the community could be simply recognized by the government so that these groups could continue to live on their land unmo­lusted. Since 1959 I’ve talked about the corporate rights of vil­lages in Borneo to government officials, and they just look at you — they don’t want to hear about it. In Costa Rica and elsewhere in Latin America this is happening, but not in Borneo — I wish
the Rungus were able to clearly establish their rights in the national legal context. What’s happening in South America blows those of us who work in South East Asia away.

**JK:** That’s where environmental groups and so on come in — groups from the outside that can help legitimize rights to the resources. They can help establish the power to engage in negotiations.

**GA:** One of the things that surprises me is that in South America you have these people organizing and taking steps based on their native cultures. In Borneo, everyone who’s organized is so far removed from the bottom level that they can’t even begin to perceive what they should do.

Finally, Lisa Beaudoin, Worldview Ltd., mentioned that the growing power and rights of multinational corporations over individuals is shocking and frightening and deserves more attention in this context, since corporations are often acting in place of governments in these areas.
The Area de Protección de Fauna y Flora Yum Balam: The Initiation and Challenges of a Development Program for the Communities and the Environment in the Maya Zone of Northern Quintana Roo

Ing. Sebastián Poot Balam
La Asociación Civil Yum Balam

ABSTRACT
In 1994, after five years of struggle to establish local, Indigenous control over the natural resource base in an area of northern Quintana Roo, the Area de Protección de Fauna y Flora Yum Balam was established. Under the guidance of a locally directed Committee and in consultation with the local people and a Consultative Council of scientists, Yum Balam is striving to establish a sustainable society, based on traditional Maya practices but also taking advantage of new opportunities to strengthen their self-sufficiency and economic autonomy. In so doing, they are at once revitalizing their ancient cultural heritage and protecting a valuable natural area.

INTRODUCTION
Although the Maya area of northern Quintana Roo is very close to the resort city of Cancún, it is one of the poorest regions in Mexico. Our strategy for improving this situation is based on the joint effort of communities, traditional authorities, the region's college of agronomy, and Yum Balam, a local environmental organization. We have analyzed the problems, expectations, natural resources, and alternatives that we, the communities, believe can be the solution to our problems.

Our município comprises an area of 3,881 square kilometers and a population of 15,967. Sixty-nine percent of the inhabitants are of Maya origin and in many cases speak only our language. The alarming economic situation in our region is forcing many of our young people to move to the nearby tourist zones to seek work. The Yum Balam Civil Association is made up of technicians, farmers, fishermen, and scientists. Working with the Supreme Maya Council in northern Quintana Roo and various NGOs, we are coming up with development alternatives that are culturally, ecologically, economically, and technically feasible for the region.

These alternatives focus on reinforcing the cultural identity of the Maya people in the face of tremendous external acculturating forces and improving the income and employment levels of the communities, so as to be able to live in health and dignity. These
goals are interrelated, because we believe that the process of taking control of our natural resources will help us to retain our culture, while at the same time, our traditional knowledge will enable us to manage our area sustainably.

To fulfill these objectives, it is necessary to take advantage of the possibilities offered by controlled logging, game management, fishing, ecotourism, and crop production techniques that are less damaging to the environment. For this, we need to rescue and use the knowledge that we have about the forest. The project seeks to establish conditions in which we can overcome this preposterous situation: extreme poverty in the midst of natural riches. To do this, we need to overcome our marginalization and seek social justice and harmonize our production by always following our traditional forms of social organization and work, as well as the knowledge that can help us achieve ecological harmony.

Another of Yum Balam’s objectives is to promote the exchange of ideas and experiences among Indigenous leaders and with the people of the United States, so as to gain support for local self-determination and to help promote traditional natural resource uses.

Our next step is to propose the creation of a Mexican sustainable development association. We are also proposing a change in Federal Law to include a new category of protected area: a conservation area that preserves the cultural and natural heritage of Indigenous people. Here, I would like to present our experience in one of our programs: the Yum Balam Protected Area.

THE YUM BALAM PROTECTED AREA

Usually, when protected areas are established, the people who live in and around them are not consulted. Some of the best preserved areas contain and are surrounded by Indigenous peoples who depend on these areas’ resources, yet these people are often seen as a threat to the biological resources of these areas. The exclusion of local people from protected areas not only weakens their material welfare, but also weakens their chances for cultural survival. This situation leads to conflicts between local people and conservationists, and often creates conditions that are worse for both the people and the wildlife.

Two key natural events and a change in government policy made action necessary for us. In 1988 Hurricane Gilbert devastated large areas all along the northern part of the Yucatán. It tore up many thousands of trees and left the region leafless and without fruit — a destruction of habitat that led to a 40% decrease in wildlife in the area. Then, in 1989, we had a drought that led to large wildfires.
throughout the area — 30,000 hectares of forest were consumed by the flames. The last straw came in 1991, when the fishery was opened to groups other than the fishing cooperatives, including to foreign fleets. We realized that our patrimony was in grave danger, and we had to defend Yum Balam, our Jungle Lord, the God of Nature, from destruction, for our benefit and that of our sons and daughters.

After centuries of “development” at the hands of outsiders, the Yucatán Peninsula has a shrinking natural resource base. The very
natural heritage upon which our culture depends, and therefore our culture, was in danger of disappearing. For this reason we decided upon pursuing the creation of this preserve, but with a difference: we sought a reserve in which we would be able to participate fully, from inception to management.

After five years of deliberations and discussions between government authorities and the local people, the Yum Balam Protected Area (Area de Protección de Fauna y Flora Yum Balam) was officially declared on June 5, 1994. The process of formation of this area was slow and detailed, and included participation from the rural communities both inside and adjacent to this zone, as well as a critical component of consultation with sympathetic bureaucrats, scientists, and technicians. The agreement that was signed on June 5 was between the federal, state, and municipal authorities and organized civil and cultural groups, fishermen, farmers, and tourist guides, and laid out the compromises and agreements to support the operation, management, and administration of the area.

The reserve is located in the northeastern corner of Quintana Roo and is inhabited mainly by Mayan people. Covering an area of 154,000 hectares, it includes a variety of ecosystems: deciduous tropical forest, flooded forests, mangroves, lakes, wetlands, a marine bay, a barrier island, coastal dunes, and coastal waters. The area also contains numerous ruins left by our ancestors, and is contiguous with the Rio Lagartos Biosphere Reserve, an area of similar ecosystems.

GOALS AND CHALLENGES FOR THE FUTURE

Among our objectives are to:

• protect the Maya historical and cultural heritage
• safeguard biological diversity across all of the ecosystems, many of which contain endangered or endemic species, including some large mammals, such as manatees
• provide natural resources to the area’s inhabitants in the form of fisheries, game animals, building materials, and alternatives for the future
• protect the aquifers critical to the area’s water supply
• preserve the potential for scientific investigation and ecologically sound recreation

At present, the Committee is working and is having meetings each month in which different social and environmental problems are addressed in order to come up with solutions for garbage han-
dling, mosquito control, fishing, tourism, forestry, medicinal plant use, handicrafts, nature guides, and so on. We already have many proposals and projects and we are always looking for new ideas in cultural, social, and ecological matters. To assure the sustainability of our plans, we have established a Consultative Council, composed of the scientists who have been supporting us. This Council reviews the technical aspects of our plans and is conducting ongoing investigations of the resource base and our use of it. We have also established a series of workshops to foster an ongoing participatory analysis of our relations as a society with the environment and our future.

Yum Balam’s major focus is to protect simultaneously local communities and the ecosystems in which they live. Traditional land uses are respected, and decisions are made based on scientific investigation, but always in consultation with the local people. This entire process of establishment and management is overseen by a committee of government authorities and local groups in coordination with research institutions and NGOs. Because there is no existing model for this alternative in Mexico, we are in the process of creating one. One of our challenges in the future will be to multiply this experience and help other Indigenous communities in Mexico to take control of their destinies as well.

In the end, we who live in the area must take responsibility for both objectives: improving our quality of life and protecting the reserve’s species and ecosystems. By taking into account the needs of the local communities, both material and spiritual, the reserve is a trustworthy custodian of the area. If we can take advantage of our knowledge, with technical and government help, and if the laws are sufficiently adapted, we can manage our natural resources to provide us with the basis for a sustainable society.

Let us be the authors and actors in our own destiny. The Maya world is distinct. We have our language and our customs, but we want to share them with the entire world. We don’t want to live on this planet separately — we are not a different world; we are a distinct world.

Kîhmak in wolah uch a úhyikenehesh, in jajal puksik’ah haik tenéh, yank nähatikabou.

[I feel happy to have been listened to with such attention, and with all my heart I hope that we will go on to exchange many ideas.]
QUESTION & ANSWER SESSION

Q: What are the most serious problems your community faces at present?

SP: The biggest problem is the lack of support for traditional practices. Since 1970 the government has been putting a lot of money into the area for “development,” but in fact the approach they have taken has benefited very few people because they have not given the people the opportunity to decide how to improve the region — rather they just did whatever they wanted to.

Q: How do you see the situation in Chiapas with the Zapatistas affecting Yum Balam?

SP: I want to answer this question by saying first that the Indigenous communities see the ongoing struggle of our Maya brothers in Chiapas as a positive development. We in the Civil Associations are with them. But, for us it is a double benefit. We have encountered sensibility, we have encountered acceptance, and because of the initiatives we have brought forth the authorities are now beginning to give people the opportunity to decide what they want. So, one of the benefits that is coming out of the war in the southeast is that they have to take us and our plans seriously. I believe that this is a moment that we have to take advantage of.

As Ted Macdonald mentioned, groups like ours now have the political wherewithal to collaborate with scientists and technicians to our benefit, and we don’t have to take directions from anyone anymore, because we know what we want.

Yum Balam invites all interested people and groups to participate in their struggle to attain a sustainable society for their people. They can be contacted through:

Agronomic Engineer Sebastián Poot Balam (Area Committee Coordinator) 403 A. Lopez Mateos St, Kantunilkin, Quintana Roo, Mexico.
Telephone and fax 91-988-4-68-61 ext 110

DVM Jose Francisco Remolina Suarez (Consultative Council Coordinator) 12 Rojo Gomez Av. Puerto Morelos, Quintana Roo, Mexico
Telephone and fax 91-987-1-01-60

Sebastián Poot Balam
Ing. Poot is an Agronomist, with a specialty in animal science. Currently he is president of the Yum Balam Asociación Civil and General Coordinator of Área de Protección de Flora y Fauna Yum Balam. Yum Balam is located in the north of the state of Quintana Roo. Ing. Poot is also Coordinator of the National Commission of Justice and Social Development for the Indigenous Towns in the Municipality of Lazaro Cardenas. In addition he is a professor at the Centro de Bachillerato Tecnológico Agropecuário of Kantunilkín Quintana Roo.
The workshop began with an overview of the history of the Yum Balam Civil Association. The group was initiated after two events in 1989 and 1990, the most significant of which was a fire that destroyed a large area of forest. People from the community began working with various organizations, including governmental and international groups. They began to form their own group with the intention of conserving all aspects of the remaining natural resources. Although the ideas and models for organization came from other groups, Ing. Poot emphasized that it is the Indigenous people who make all the decisions in their group. The group is trying to encourage education, technical expertise, and diversification of production so as to become sustainably self-sufficient.

The next major topic concerned the economic basis of Yum Balam. Ing. Poot emphasized the importance of diversity in community economic development. He spoke about the traditional agriculture of the Maya people, centered around maize, as explained in the *Popul Vuh*, the spiritual scripture of the Maya. It also features a diversity of other crops. Agriculture is only one part of their economic activity which also includes deer breeding, arts, crafts, fishing, domestication of plants, and tourism. The goal is to bring all of this together as a coherent basis for resource use. While the nearby tourist pole of Cancún makes ecotourism an important part of the strategy, it should not affect in any way the traditional diversified agricultural basis. Ecotourism must be undertaken with care, because it contains the seeds of its own destruction, at least in Mexico, where success is almost defined as exceeding the carrying capacity of the region.

The workshop participants also discussed the effect NAFTA might have on groups such as Yum Balam and the Mexican *ejidos*. Opinions were mixed, but the predominant opinion is embodied in this comment: “There is no such thing as an *ejido* which can live independently of the national and international system of pricing.” Most, if not all, Mexican communities deal at least partially in the cash economy. Ing. Poot’s community is trying to create a microeconomy alongside international market structures by finding “niche markets;” markets which remain outside world-wide competition. One example from Ing. Poot’s community is the manufacture of railroad ties. Currently they have an exclusive market because Mexican law prohibits the government from buying this product from international suppliers.
Lastly, the discussion centered around the Indigenous movement of which Ing. Poot is a member. It was pointed out that this international Indigenous movement gives them leverage within Mexico. Leverage and political pressure is very important for the success of community movements such as Yum Balam because it creates a political challenge to existing political structures.

The following excerpts expand on some of these issues:

**Sebastián Poot:** Our organization was established in 1989. I want to give you an idea of the two key events that led to the birth of the Yum Balam Civil Association (*La Asociación Civil Yum Balam*). In 1988 Hurricane Gilbert destroyed the coast of northern Quintana Roo. Then, in 1990 a wildfire destroyed 30,000 hectares of forest in the region.

Together, these disasters killed maybe 40% of the animals in the forest — *tepescuintles* (agoutis), wild pigs, spider monkeys and so on. We started to work with ProFauna, an organization based in Baldislo. They realized that the majority of the surviving animals had moved into the remaining forest, which surrounded our *municipio* and they decided that they had to protect this area.

When we started this organization, we also had other things in mind, not just flora and fauna. We had to consider all of the resources that exist in the area — wells, ancient ruins, and other things. We intended to work toward conserving not just the plants and animals, but also the broad natural resource base that our lives depend upon. At first we were going to use ProFauna as a model for our own organization, but we decided that we wanted our group to be more independent. So we started to work with technicians and scientists from various institutions who were working in the area on coastal turtles and botany. We started talking to these people and became friends, and they helped us to establish our own projects.

At present, the government, including the State Governor and the Municipal President, are very supportive.

Nevertheless, even though we have all of this advice and support, the Indigenous people of Yum Balam remain in the decision-making capacity. We are the ones who make all of the decisions, based on the advice and support that we can gather.

Q: What is the economic basis of the community development? Is the idea to make it viable through ecotourism, or through traditional swidden agriculture, or some modified systems? How do you plan to maintain economic sustainability?
SP: The agricultural system is basically sustainable by itself — we will always be self-sufficient, at least as far as food is concerned. Naturally, it’s based on maize, in the traditional fashion, with about 20 other main crops, and this is perfectly compatible with our conservation objectives. However, we’re encouraging a diversification in order to make our economy more robust. We are trying to diversify our sources of income by promoting projects to produce handicrafts such as hammocks, as well as deer breeding and fishing and orchid and other plant domestication. Ecotourism is obviously an important part of this strategy, but we will not allow it to affect in any way the traditional, diversified basis for our livelihoods. Hopefully this will keep our community reasonably resilient to turmoil elsewhere in the Mexican and global economies and sustainable in the long-term.

Jim Spencer, Moderator, Yale F&ES: How will NAFTA change the relationship between the local community and the government?

SP: We are trying to work within the government, using the local planning apparatus as a way to get control of government funds to promote regional development. Through these programs we are able to supply products such as railway ties that have protected markets within the country. To the extent that we can, we try to remain outside the markets that experience a great deal of international competition.

We are also a part of a national Indigenous movement in Mexico that is an attempt to create an independent political power. This group, the Asociación Mexicana Indígena para Desarrollo Sostenible (AMINDES), promotes cooperation among Indigenous groups in Mexico and seeks international support to help us advance our struggle. This gives us some greater bargaining power to create these protected areas.
The Panará: Indigenous Territory and Environmental Protection in the Amazon

Stephan Schwartzman
Anthropologist
Environmental Defense Fund

ABSTRACT
The Panará Indians of northern Mato Grosso and southern Pará have endured in this century decimation and diaspora. After decades of avoiding contact with Brazilian society, their territory became so diminished and the frontier so inexorable, that they were finally contacted and moved to Xingú Indigenous Park. There, they recovered from the brink of extinction and put in motion the process to reclaim the remaining parts of their traditional territories. Now, in 1995, they are in the process of returning. The struggle of the Panara exemplifies an ecologically and culturally viable alternative for the development of the region and for sustainable co-existence with intact natural areas.

INTRODUCTION
The Panará, or Krenakore, Indians of northern Mato Grosso and southern Pará states in the Brazilian Amazon, were in the late 1960s and early 1970s all but exterminated when the federal government opened a road through the middle of their territory. They became paradigmatic “victims of the miracle” (Davis 1977; Shelton 1977) — victims of the so-called economic miracle of Brazil’s military, which pushed roads through the rainforest and sponsored pharonic mega-infrastructure works across the country. Now, twenty years after this contact, the Panará are returning to their traditional lands to halt the expansion of the predatory development frontier.

When part of the Trans-Amazon network, the Cuiabá-Santarém highway, was opened through the Panará territory in 1968 and 1973, as much as 80% of their population died of diseases and epidemics brought into the area. Of some 9 villages in the area with a population of between 350 and 600 people, the majority had died within two years of the official contact.

The survivors were then relocated to the Xingú Indigenous Park, 250 kilometers away in a different ecosystem and a different social universe of 16 other Indigenous groups with whom they had had no previous peaceful contact. They have spent the last 20 years in the Xingú.

Now, in 1995, the Panará are going back to their traditional land. In 1991, when a group of Panará made the first trip back to their territory since the group was transferred, they identified part of their land still unoccupied and forested, and devised a plan to reoccupy and defend the area.

They also verified that there are now three towns and extensive gold mining operations in the Peixoto de Azevedo river, the center of their traditional land. Most of the superficial gold deposits have
run out, leaving much of the watershed seriously polluted and degraded, and large scale mahogany extraction is poised to expand with the decline of gold mining. In addition, the Panará determined that a process of land fraud (grilagem) was beginning in the unoccupied part of their territory.

In 1994, the Panará filed two lawsuits against the government in federal court, seeking official recognition of their traditional land rights and indemnification for losses incurred during the contact. They have now established a presence in the remaining part of their territory with a village and gardens. On December 14, the National Indian Foundation (FUNAI), Brazil’s Indian agency, published the official identification in the federal register. The first step of legal recognition of this area, identification recognized their rights to an area of 488,000 hectares in northern Mato Grosso and southern Pará. These measures have served to interrupt the land fraud operation under way in the area, which can be definitively halted by full legal recognition of the Panará land rights (demarcation) and continuing attention from the relevant government agencies.

The Panará have achieved this much through creating alliances with other Indigenous groups in the Xingú and elsewhere as well as with various environmental and Indigenous rights groups. This is only one instance in which collaboration between Indigenous (and other forest based) groups and environmental NGOs has shown benefits for both environmental protection and Indigenous rights. This initiative has used innovative legal strategies and new technologies — geographic information systems and analysis of satellite images — to make it possible for the Panará to press an effective claim for recognition of their land rights, and ultimately to defend a substantial area of pristine tropical forest.

What is at stake for the Panará is the control of their own destiny. For 20 years they have been struggling to reconstitute a society that was essentially destroyed during contact, and, to a remarkable extent, they have succeeded. However, what is also at stake is the possibility of preservation of a very substantial area of extremely rich tropical forest.

In environmental terms, the immediate options are clear: either the Panará will reoccupy this area or it will be occupied by ranchers, loggers and colonists and become very seriously degraded. The long-term management of the area is an important challenge, since the Panará traditionally occupied a region perhaps four times greater than the identified area, surrounded by a still greater region into which the frontier had barely penetrated. They hunted with bows for 20 years [the Panará] have been struggling to reconstitute a society that was essentially destroyed in the contact, and, to a remarkable extent, they have succeeded. However, what is also at stake is the possibility of preservation of a very substantial area of extremely rich tropical forest.
and arrows and clubs, and had no connection to the money economy. All of these conditions have changed irreversibly. The long-term sustainability of the area will depend on how these realities are addressed. But the more immediate question for this area, on which the possibility of the future conservation of the biodiversity of the region depends, is “Who will control the area?”

In the following discussion I suggest that while the Panará initiative is the result of particular historical circumstances — the history of the Panará and their contact with the national society — it is also paradigmatic of the process of frontier expansion in the Amazon, and so demonstrates critical elements of an alternative approach to development for the region.

THE HISTORY OF THE PANARÁ OF THE PEIXOTO DE AZEVEDO AND UPPER IRIRI

An important part of the history of the Panará was unknown when Indian agents Claudio and Orlando Villas Boas set out to contact them in 1968, and has been definitively established only in the last few years. Adrian Cowell, who documented the contacting expedition in The Tribe that Hides from Man (1973), surmised that the Panará might be descendents of Timbira groups that had fled the cattle ranching frontier in Maranhão, and so shunned contact with the Villas Boas expedition because of ancient memories of war with the Brazilians. Cowell was not far off. The Panará speak a language of the Northern Gê sub-family of the Gê language family. Other Northern Gê languages include Kayapo, Suya, Apinage and the Timbira languages. Recent ethnohistorical and linguistic research has demonstrated that the Panará are in fact the last descendants of another group in this language sub-family, a people known in the historical annals of Brazil as the “Southern Cayapo” (Giraldin 1994; Dourado and Rodrigues 1993), at times incorrectly confused with the Northern Kayapo, and thought to have become extinct in the first decades of this century. Giraldin’s analysis, and the subsequent comparison of Alexandre de Souza Barros, Auguste St. Hilaire (1975), and Johann Pohl’s (1976) historic word lists with contemporary Panará by linguists Luciana Dourado and Aryon Rodrigues (1993) leave no doubt that Panará and Southern Cayapo are the same language. The Cayapo’s name for themselves, for example, was “Panará.” Panará oral traditions say that the Panará moved westwards in the distant past, away from the whites and their guns, from a region of savannah to a forested area where there were no whites.

The present day Panará are then the survivors of a much larger people — the Southern Cayapo — who in 1720 occupied an enormous expanse of territory, from the Parnaíba River in São Paulo to

bulletin 98
the southern part of Goias, from the “Minas Gerais Triangle” to eastern Mato Grosso and eastern Mato Grosso do Sul. Historian John Hemming (1978) estimates that there may have been 25,000 Southern Cayapo in 1500. Starting in 1723, with the discovery of gold in Goias, and subsequently in Cuiabá, Mato Grosso, they fought the Portuguese ferociously but suffered massacres and numerous slaving raids. In 1751 they attacked the City of Goias, the capital of the province. Various bandeiras (private militias) were contracted to fight and enslave the Cayapo, and eventually some groups accepted contact and were settled in government aldeamentos (villages), where St. Hilaire and Pohl visited them in the 1850s and 1860s and from which they were subsequently assimilated into the regional society or died out. Other groups, however, withdrew westwards before the frontier into the remote forests of Mato Grosso and southern Pará. The reason that the Panará fled contact, as Cowell intuited, is that their traditions held outsiders, “whites” in particular, to be savage and dangerous enemies.

By 1920 the Panará had various villages in the region of the Peixoto de Azevedo and Upper Iriri basins, and in a chance encounter on the Iriri Novo River, began the war with the Kayapo that would continue until 1967. When Claudio and Orlando Villas Boas opened and built the airstrip at Cachimbo, in 1951 (which subsequently became a Brazilian Air Force base), they noted the presence of the Panará.

CONTACT WITH THE PANARA

The events of the unsuccessful Villas Boas expedition to contact the Panará had enormous repercussions among the Panará. The permanent contact of the Panará with Brazilian society in this century began with the Mekragnoti Kayapo raid of 1967. The Kayapo had raided the Panará with guns before, but in 1967, for the first time, they obtained a large quantity of ammunition from the missionary living with them. They killed some 26 people in the village of Sonkansas on a small southeastern tributary of the Upper Iriri River, at the time the northernmost Panará village. The Kayapo burned the village, and the surviving Panará fled. By the time the survivors regrouped in a nearby village, the Kayapo war party had left, and retribution was impossible.

The Kayapo attack began a process of successive withdrawals, as the Panará moved from one village to another, seeking to avoid first the airplanes that Claudio Villas Boas flew over their villages, then the approaching contacting expedition. The arrival of the airplanes, which dropped trade goods — machetes, beads, and so on — into the Panará villages, provoked a discussion among the Panará that
would continue until the contact. The elders — the only ones who had seen Brazilians, in sporadic encounters with rubber tappers or skin hunters — held that the whites were “wild” (asàr) and dangerous, and that, as of old, they had come to kill the Panará. However, based on the palpable proof of machetes, knives, beads and axes, the young men argued that the whites had come to bring them things; that they were not wild. The traditional authority of the elders was decisive throughout the period described in The Tribe that Hides from Man, and the Panará fled. As the airplanes found more and more villages, and as the expedition reached the easternmost village (Sonesasà), the Panará abandoned village after village, and with them, gardens planted to support the ever more concentrated population.

In 1969, government funds were cut off and the first Villas Boas expedition to the Panará halted. It returned only when the situation had reached crisis proportions. Surveyors were laying the course for the Cuiabá-Santarém road when Claudio Villas Boas set out again, from the air base at Cachimbo. Advance crews for the road had already reached Panará territory when the contacting expedition set out again, in 1972. The Panará were by this time almost all concentrated in two villages — a village called Pà’sûpàri on the Nhandu River, and a new village called Topayurô, on the Braco Norte.

Claudio paralleled the surveyors opening the trails for the road crews to follow, moving south from Cachimbo toward the Peixoto de Azevedo, leaving machetes, pots and pans, beads, and axes for the Panará. The Panará took goods from Claudio’s group on numerous occasions, and finally, in February of 1973, entered Claudio’s camp on the Braco Norte River (a small northern tributary of the Peixoto de Azevedo). By then, the group had largely moved across the Peixoto de Azevedo to the sole remaining village that the contacting expedition had not discovered by air, Yopûyûpaw.

It was here, shortly after the initial contact, that the first epidemics began. When the first epidemic struck (probably influenza), those who could still move decided to go back to Topayurô, and many died on the trail.

Between 1973 and 1975, when the surviving Panará were transferred to the Xingú National Park, at least 178 men, women, and children died of white peoples’ diseases, out of a previous population of at least 320.

The Panará recount horrifying episodes from this period. In the first wave of epidemics, so many people died, and the survivors were so sick and weakened, that the living were too few and too debilitated to bury the dead. Vultures and turtles ate the corpses.
Since serious illness or death except by accidental causes or violence was in traditional terms explained as Panará witchcraft, many Panará were executed as witches as a result of the epidemics. Epidemics resulting from the contact have undoubtedly had similar consequences in many other lowland South American Indigenous groups, since notions of witchcraft and sorcery as the cause of disease are widespread. The anthropological literature on violence in the lowlands has largely ignored this until recently.

After the first wave of epidemics, the main body of Panará returned to the village of Topayurô, near Claudio’s encampment, and regular contact was established. Disputes over whether the whites were “wild” or not continued. On several occasions, elders proposed or attempted to attack the contacting expedition, only to be dissuaded by the junior men. The Villas Boas brothers left the front, and were replaced by a succession of FUNAI staff. A small area had been set aside for the Panará during the contact, but this did not even include all of the villages known at the time of the contact or shortly thereafter.

Road construction was already underway when the Villas Boas brothers left, and the Panará became fascinated with the road crews, building a village a few kilometers from the road. When the road opened in December, the Panará were photographed begging by the side of the road. Reports appeared in the press of Army Engineers giving them liquor and prostituting the women. The President of FUNAI decided, with the support of the Villas Boas, to remove the surviving Panará to the Xingu Park. Two senior men, Watuya and Kreko, were sent in advance to see the Xingu.

The two spent two days in the Xingu, and on their return the Panará asked them what they had seen, and if there were people (panará) in the Xingu. They replied that they had seen a big river, and fish in it, and that perhaps there were “people” there. The Indians of the Xingu also painted over their eyes with red body paint (urucum), like the Panará.

RELOCATION: THE XINGU

In January of 1975, the 79 surviving Panará were removed from the airstrip at the junction of the BR-80 and BR-163 roads in two Air Force cargo planes and taken to the FUNAI post Diauarum in the Xingu Indigenous Park. The Panará diaspora had begun. The Panará arrived hungry, anemic, infested with malaria and parasites and with no women pregnant. They were dispatched to the Kajabi village of Prepuri, where five more people died within the first two months.

The Panará, deeply dispirited, began to talk of returning to their
land in the Peixoto de Azevedo. Park authorities and the Kayapo chief, Rauni, however, moved the Panará to the Kayapo village of Kretire in March of that year. The Panará were thus delivered to their traditional enemies. The Kayapo followed a policy of aggressive acculturation, initiating Panará boys into Kayapo men’s societies and marrying Panará girls to Kayapo men. Further epidemics killed another five Panará, and it was probably this medical emergency that allowed the new Park director, Olimpio Serra, to negotiate their removal in October of 1975. After medical treatment at Diauarum, the group moved to the village of the Suya. Health conditions improved, and the Suya did not attempt to assimilate the Panará. The Panará began to recover. They planted their own garden and began to perform traditional rituals, songs, and dances again. In 1976 they identified a site for a village of their own, and they moved there at the end of the year.

By 1980, when I first met the Panará, they were living in their own village, feeding themselves from their own abundant gardens, and fishing successfully from their own canoes, which they had learned how to build in the previous few years. Their population was increasing, as it had been since they founded their own village. Nonetheless, they talked constantly about their land. They compared their traditional area, rich in game and good land for gardens, with its abundant forest resources, including Brazil nuts, the açaí palm, and wild cacau, with the Xingú where game was scarce, the land was poor, and many forest resources were absent or rare. In every moment of crisis, the idea of returning surfaced, in spite of being informed each time that the Peixoto was overrun by whites and devastated.

Illness and the lack of good land for gardens compelled the Panará to move seven times within the Xingú. In 1983, after several epidemics brought population growth to a standstill, the Panará moved to a new village on the Xingú downriver from the BR-80 road. After a few years, when land for gardens became scarce, the Panará began to seek another new village site. After several people, including Tenko, the adult son of the principal Panará chief, Akà, died in the new village, the group moved in 1990 to the western limit of the Xingú Park, at the confluence of the Arraias and Manitsuá-Missu Rivers. The Panará began to hunt and fish outside the park, in uncleared lands belonging to ranchers, an area ecologically similar to their traditional lands. In 1991, a group of Panará fishing outside the reserve killed a ranch hand in a dispute. The group continued to grow in the new location, but their extensive forays outside the Park, and the potential for conflict these implied, suggested that this location as well was still another way station in the Panará diaspora.

The Panará began to recover. They planted their own garden and began to perform traditional rituals, songs, and dances again.
THE PANARÁ RETURN

While the Panará never ceased discussing the fate of their traditional land, their conception of this land changed substantially between 1983 and 1991. In 1983 the Panará talked of various locations in their traditional territory (Sonkànäsàri, Pà’sûpàriri, Pesôturi, “the Peixoto”), but had no clear conception of “Panará land” in the sense of a defined territory that they possessed, or had possessed. Their word for land (kupa) meant “earth,” or “soil.” In 1991, after long exposure to the Kayapo and other Indigenous groups in the Xingú, and to discussions of land issues in the Xingú, the Panará came to recognize that under the terms of Brazilian society, their territory belonged to them. They spoke of “Panará land” (panará nyo kupa), and had an acute awareness that resettlement from their land to the Xingú and the subsequent expansion of the frontier into the Peixoto implied losses and damages to them. About 1986, a group of Panará men went to Brasília to demand compensation for the land they had lost in the transfer from Romero Jucá, the then-President of FUNAI. Jucá gave them a number of shotguns. In 1991 the Panará returned to Brasília, seeking to reopen a discussion of compensation for their traditional land with FUNAI. In November of the same year, the Panará mobilized sufficient support to return to their traditional land for the first time in nearly 20 years.

The six Panará men who went to Matupa and Peixoto de Azevedo discovered two things. First, they saw that a large part of their traditional territory had been occupied by the gold rush that had started as soon as they were removed. Virtually the entire Peixoto de Azevedo basin was devastated. Tens of thousands of placer miners (garimpeiros) had passed through the Peixoto goldfields, blasting out the riverbeds with high pressure hoses, reducing the gold-bearing sediments to rivers of mud, and extracting the gold with mercury. The result was a malarial moonscape, with acres of standing water, mercury-contaminated mud flats, and dead streams and rivers. The gold was almost gone, but there was still mahogany in the more distant forests, and along the roads was a ragged patchwork of cattle ranches and farms.

On a reconnaissance flight, however, the Panará saw that the northeastern sector of their traditional land remained intact — with the forest still standing and no signs of occupation. Crossing the hills of the Serra do Cachimbo to the Iriri watershed, in the region of the villages of Nampôrõ and Sonkànäsà, where the Kayapo had attacked in 1967, and where the Panará had had several previous villages, the Panará saw only forest — the closed, primary tropical forest of their land.
Panará chief Akà at once declared his intention to reoccupy and gain government recognition for the remaining Panará territory. In an interview in the Peixoto goldfield, the day after the flight in November 1991, Akà stated, “The land where I was born has been consumed, the forest razed, the rivers filled in, the animals finished. White people can stay there and we won’t argue. But we have found a part of our land that is still forest, and we are going back there. If the white chiefs send their people there, then we will fight.”

In the following three years, as Akà declared they would, the Panará undertook a series of steps to reoccupy their traditional land and gain official government recognition for it. They sought support not only from FUNAI, but from a group of non-governmental organizations (NGOs) as well — the Environmental Defense Fund, the Instituto Socioambiental (formerly the Ecumenical Center for Documentation and Information and the Nucleus for Indigenous Rights), and the Associação Vida e Ambiente (formerly Fundação Mata Virgem). In a series of subsequent visits to the region, groups of Panará men located former village sites, gained an understanding of the processes occurring in the area, and formulated a strategy for reoccupying their remaining land. The NGOs, responding to the Panará request for support, provided logistical and technical support such as maps, satellite images, and legal research.

The Panará found an area of some 488,000 hectares (more than 1.2 million acres) of their traditional land still unoccupied and intact, on the border of Pará and Mato Grosso states, comprising the upper headwaters of the Iriri and Ipiranga rivers. Part of this land (in Pará) had been claimed by the military as part of the Cachimbo air base (which was to have become a nuclear test site, until the military nuclear program was terminated by President Collor). The remainder, in Mato Grosso, was ceded to the Institute for Land Reform and Colonization (INCRA), for the settlement of small and medium farmers from other parts of the country as agricultural colonists. In this part of the Panará territory, called Gleba Iriri, a group of ranchers, loggers and local politicians, reportedly with the support of the state Superintendent of INCRA, had been perpetrating an extensive land fraud operation (first detected by the Panará on an overland trip to find the site of the village of Sonkànasa). Opening clandestine airstrips in the area, the group would divide up the public land into lots and sell it to third parties, intending to legalize the illicit transactions through INCRA, and quelling any competition through armed force. The “group of ten” was, at the outset of the dry season of 1994, beginning to move into the remaining intact portion of the Panará area. If they were successful in getting the fraud “legalized” before the Panará established themselves...
in the area, gaining official recognition of Panará rights in the area would be seriously complicated.

In May of 1994, the Panará identified a site for a village on the Iriri river, and began work on the new village, gardens, and an airstrip. In August, having built a village and cleared gardens and the beginnings of an airstrip, the Panará, through their attorneys at the Nucleus for Indigenous Rights, filed suit in Federal court in Brasília for the demarcation of the remaining portion of their traditional land, guaranteed them in perpetuity by the Brazilian Constitution.

In September 1994, FUNAI convened a working group to carry out the official identification of the Panará territory. Led by anthropologist Ana Gita de Oliveira, the group travelled five days up the Iriri river from the Kayapo village of Kubenkokre to verify the presence of a group of Panará in their new village. Two days after the FUNAI team left the Panará village, the ranchers’ gunmen arrived, looking for the FUNAI team. After a tense exchange, the gunmen left. The Panará then withdrew to Kubenkokre, fearing an attack.

In November of 1994, the Panará convened an historic meeting in their village in the Xingú, to discuss their plan to move back to their traditional territory with the leaders of the peoples of the Xingú. Most of the principal actors of Xingú Park were present: Kayapo chief Rauni, his nephew and director of the Xingú Park, Megaron, Kajabi leader and FUNAI post chief Mairawe and Kajabi chiefs Prepuri and Cuiabano. Claudio and Orlando Villas Boas, the park’s founders, were invited but did not attend. The Panará assembled, for the first time, all of the Xingú leadership in their village. The four Panará chiefs, or elder men, Akà, Teseya, Kókriti, and Krekõ, publicly declared the group’s intention to return to the land of their parents and grandparents. They emphasized that the Xingú is not Panará land, that their land is fertile, abundant with game and fish. Nine other Panará men and women spoke to the same effect.

One younger man spoke against the move. The large majority of leaders of other Indigenous groups in the Xingú who spoke supported the Panará initiative, and many — Txicão, Suya, Kajabi — spoke of their lands outside the present boundaries of the Xingú. Olimpio Serra, who succeeded the Villas Boas brothers as administrator of the Park, remembered the Villas Boas’ initial proposal for the Xingú Park — a much larger area than the present reserve, which, had it been created, would have protected the land of the Panará, the Txicão, and the Kajabi and made the attraction and transfer of these groups unnecessary.

Serra recalled the moment when the contact of the Panará had begun, with the concept of the Xingú Park put in jeopardy as the BR-80 road cut across the northern end of the Park. Since that time,
the Indians of the Xingú, principally the Kayapo, have won back, piece by piece, the land removed from the Park when the road was built. With the demarcation of the 5 million hectare Mekragnoti Indigenous area in 1992 in southern Pará state (an initiative led by Raún), an expanse of contiguous Indigenous lands much like the original proposal for the Xingú has taken shape. The Panará area is the next step in this process, as Prof. Serra noted. In other words, the vision that Claudio and Orlando Villas Boas, anthropologist Darcy Ribeiro, and others, had of the Xingú in 1950 but were politically unable to achieve, is being made a reality by the Indians themselves, most recently by the Panará.

PANARÁ AND DEVELOPMENT IN THE AMAZON

Panará history is more than a dramatic story of how one Indigenous group lost, and then found again, its traditional territory. The history of the Panará in fact exemplifies important larger trends in several senses.

First, it is a story about the Amazon and about Indians, about destruction of the forest and the abuse of the rights of a tiny minority. So apparently, it is one of those tales that foreigners worry about, but that are held to be peripheral to the concerns of the more than 60% of Brazilians who live in cities, the perhaps 90% who live outside the Amazon, and the more than 99% who are not Indians. In reality the implications of this story are of national and global significance.

The time frame of the Panará story is the same time frame as the development of the Amazon: most of the more than 426,000 square kilometers of Amazon deforestation has happened since 1968 (Fearnside 1993). The motor of deforestation is also the same — the road. The logic of the construction of the Cuiabá-Santarem was the same mixture of ideology and economic speculation that motivated the Trans-Amazon and other road building adventures — a military geopolitical drive to occupy the vast interior before others did, and the supposition that large infrastructure works in the region would bring about economic growth and prosperity.

Both the fear and the hope have proved unrealistic. No foreign power or migratory wave from abroad threatens the region. And, after tens of billions of dollars of public investment, there is little prosperity to be seen in the Amazon. The World Bank found that in 1980 the major cause of deforestation in the basin — agriculture — was responsible for one half of one percent of the national GDP (World Bank 1989). What is left today in most of the Panará territory, as in other waning gold boom areas, is a seriously degraded river basin where the gold rush passed, a handful of cattle ranches,
and three cities in precarious circumstances since the superficial gold deposits are running out. There is, for the time being, still mahogany, but it too will be inevitably consumed. Loggers in the region are rumored to estimate that the commercially exploitable mahogany will be exhausted in the short term, counted in years rather than decades. While the gold rush has indisputably constituted an important source of income for the rural poor in the Amazon (cf. Cleary 1990), the declining production evident in the Peixoto appears to be general (US Department of the Interior 1994). Both gold and mahogany tend to concentrate income upwards, and large scale contraband export deprives the government of revenues from the liquidation of what is in essence public natural capital.

Development in northern Mato Grosso, as elsewhere in the Amazon, is strongly marked by the private appropriation of public goods (the land, the gold, the mahogany) to benefit a tiny elite, with substantial, and more broadly distributed, environmental and social costs. As Philip Fearnside (1993) has shown convincingly, it is not the case that deforestation is caused by poor smallholders cutting down the forest for subsistence: while medium and large landholdings (>100 hectares) are less than 8% of all holdings, they account for 70% of the deforestation in the region. Much of the deforestation is a result of the land rush, in which the radically inequitable distribution of land and income in Brazil as a whole has been reproduced in the Amazon. In 1980, less than 1% of landholders in Brazil controlled half of the land, while the smallest 50% had less than 3%. Income distribution is similarly skewed. In the Amazon this pattern is in some cases exacerbated: in Mato Grosso, for example, 70% of the landholdings occupied only 3% of the land area, while the 7% of the holdings over 1,000 ha occupied 83% of the land (Fearnside 1993). In short, if landlessness and poverty have driven colonists and rural-to-urban migrants to the Amazon and cities like Peixoto de Azevedo, what they find there is most often not a solution. The process that brought the frontier to the Panará territory has not resolved the problems that put it in motion, it has simply displaced them.

What is at issue in Brazil and the Amazon then, as in the Panará territory, is not a struggle between environmental protection and development. Rather it is a struggle between a model of development that benefits relatively few, at great human and environmental cost, and the possibility of a better development model, one that can sustain economic opportunity based in the conservation of natural resources.

What the Panará are doing now, in 1995, is paradigmatic of what needs to be done if the possibility of another development model is
to be preserved. The demarcation of Indigenous lands like the Panará territory is a critical step towards legality and order in the chaos that reigns on public lands in the Amazon. Twenty percent of the national territory is public land, much of it in the Amazon. Invasions of Indian lands and conservation units are rife, private land claims remain to be sorted out, and different and conflicting categories of federal land are superimposed on one another (Santilli 1994). This sends the worst possible signal to private actors, who, in the absence of any effective enforcement of environmental or other legislation, freely appropriate public lands, extract resources, and disseminate destruction. No effective incentives for sustained forest management are possible until land rights are clearly organized, since no one will make a long-term investment without some assurance that they can reap the benefits of it.

The Panará have mobilized public institutions (FUNAI and the Federal Prosecutor’s Office) as well as private, non-governmental groups, in order to short circuit land fraud in their area, and are pressing forward the legal and de facto protection of the land. In short, they are in the process of bringing order out of chaos. They, like other Indigenous groups and many rubber tapper and Amazon peasant communities, have an interest in preserving large expanses of forest from the most destructive forms of occupation of the region. This is why, in the struggle over land at the mining, ranching, and logging frontier, where the policy for the future of the region is being made, the initiatives of such groups are a critical element for any strategy for conserving large areas of forest and preserving the possibility of a better development model.

Preserving the possibility of a better development model, however, is not the same thing as demonstrating how it is to be achieved. In securing their land rights, the Panará will indisputably perform a substantial environmental service by defending an area of forest the size of Delaware. But for the Panará, as for the neighboring Kayapo (who occupy more than 10 million hectares in southern Pará and northern Mato Grosso), the challenge is to find practical and reliable sources of cash income that are environmentally sustainable. The Kayapo have recently renounced timber and mining contacts (Turner, 1995) that have occasioned environmental damage and social tensions among them, and the present generation of Panará leaders is also opposed to deals with loggers and miners. Even the Kayapo areas most affected by logging and mining are, by virtue of their size and the Kayapo ability to control access, immense repositories of biological diversity. This is easily verifiable by comparing satellite images of the Kayapo area and the surrounding region over time — the difference between clearcut cattle ranches and the for...
ested Indian areas becomes immediately obvious.

Ultimately, however, the defense of territory in itself will guarantee neither the conservation of biological diversity nor the well being of the Indigenous peoples. Impoverished Indigenous groups utterly dependent on the uncertain largesse of the government for income and assistance are unlikely to hold out against the predatory exploitation of their resources. If defense of territory is the necessary condition for the sustainability of the Indigenous lands, in the absence of which the very possibility of large scale conservation on the public lands of the region is compromised, then reliable government assistance (for health care and education in particular) and viable economic alternatives are the conditions through which it is possible to imagine Indigenous territories as part of a broader regional strategy of conservation and sustainable resource management.

Perhaps the most important implications of the Panará project are conceptual. Both the Panará and the groups supporting them understand the project as a learning process. To succeed in the immediate objective of reoccupying and defending the land will require that the Panará continue the process of reconstituting their traditional society — reasserting the competence of Panará leadership to propose and execute strategies adequate to changing social, historical, economic, and ecological circumstances. The success of the Panará project depends on the ability of the Panará to re-create themselves as the subjects of their own history.

Many environmentalists, and some anthropologists, understand Indigenous culture as a “fixed repertoire of ‘tradition,’” or as a static body of knowledge and customs, as Terence Turner (1995) has pointed out. The enthusiasts of Indigenous resource management in tropical forests and its critics both tend to see change as entirely derived from the outside, and essentially as loss or degradation. Such a static view of Indigenous cultures can account for neither the enormous proliferation of Indigenous societies and cultures in the Amazon before 1500, nor the complex dynamics of internal change within Indigenous cultures evidenced by the disputes over resource use among the Kayapo and the Panará reoccupation of their territory. The case of the Panará clearly requires a more dynamic conception of culture: as a “flexible capacity for collective adaptation or self-creation,” as Turner has so well put it (Turner 1995).

If culture is the capacity for collective self-creation, and not merely a repertoire of tradition, then the Panará reconstitution of their traditional culture is to be understood as their recovery of the capacity for self-creation. This has important implications for thinking about the long-term sustainability of the Panará territory and other Indigenous areas. The Panará return takes place on a different
landscape, physically as well as socially and economically, than did the contact. To recast themselves as the subjects of their own history, the Panará have incorporated a plethora of new technologies and concepts. The great challenge, and potentially the most important result of the project for the Panará and the public interest, is to make it pragmatically possible for the Panará to incorporate the concept of sustainability.

QUESTION & ANSWER SESSION

Q: I have a question of clarification about FUNAI. Academics like me have seen it as a kind of bad guy, but you have mentioned that they have been helpful in this case. Could you explain how FUNAI fits into this process?

SS: Well, there are extremely good people in FUNAI — there is a small but important core of people who are very serious about Indigenous land rights. The fact is that various higher authorities, from the President on down, who have not had Indigenous rights as their priority, have imposed themselves upon FUNAI — everything that you have heard about them is right. Nonetheless, the agency is capable of carrying out its mandate.

It also varies according to the moment. At present, were it not for the NGOs, despite the best intentions in the land division of FUNAI, this identification would not have happened because FUNAI didn’t have the money and would not have been able to do it by itself. In the last two years they have received something on the order of about 5% of their budgetary request. Were they better organized and not grossly overstaffed with useless functionaries and understaffed with competent people, they still wouldn’t have the resources to carry out their mandate.

Q: Is there a danger that the Panará may deplete the resources in their new area, as it is just a fraction of the area that they originally occupied?

SS: Well, that’s a good question. You have to remember that this is an area about the size of the state of Delaware for a group of 158 people, so there is a lot of land and it is enormously rich. Nonetheless, it’s a real problem. From their perspective, of course, they see themselves as being in a much more tightly squeezed position now. A large part of what had motivated them to leave the Xingú four years ago was that, as their children grew, they realized that there was not enough land for them there.
I think that we have to bet on their adaptive capacity and ensure that they have the necessary information upon which to base good judgments. It is important for them to have a sense of ownership of this area, so that they can begin to think about new strategies for subsisting in it.

The immediate priority, given the situation, has been to secure their rights in the area. The next critical step, of course, is to begin a discussion of resource management and sustainable income generation, and this is something that is being contemplated in the project.

REFERENCES
Dourado, Luciana, and Aryon Rodrigues. 1993. Panará: Identificação Linguística dos Kren-Akarore com os Cayapo do Sul, communication to the 45th Annual Meeting of the Brazilian Association for the Progress of Science (SBPC), Universidade Federal de Pernambuco, Recife, July 11-16.
STEPHAN SCHWARTZMAN
Dr. Schwartzman received his PhD in Anthropology from the University of Chicago in 1988, for a thesis focusing on work with the Panará in Northern Mato Grosso. Since 1987, he has been part of the International Program at the Environmental Defense Fund in DC, advocating environmental reform of multilateral development banks and researching extractive reserves as conservation alternatives in the Brazilian Amazon. Presently, he collaborates with the Panará and a consortium of Brazilian NGOs to support the Panará Initiative to reoccupy and defend traditional territory in Mato Grosso and Southern Pará States.
Stephan Schwartzman Working Group

The discussion in this group focused on the relationships between the Panará and the other actors in the area. From the time of contact and through their first few years in the Xingú Indigenous Park, the Panará had overwhelmingly negative relations with other groups, including other Indian groups, government agencies, settlers, and road crews. Once they were able to found their own village in the Xingú and began to reestablish their cultural identity, the Panará were eventually able to form a network of strategic alliances with other Indigenous groups, NGOs, and government agencies. When they decided upon pursuing an agenda of return to their traditional lands, they were able to access sufficient support through this network to be able to make this a reality. The following excerpts explore some of the dynamics of this remarkable transformation:

Janet Sturgeon, Moderator, Yale F&ES: This has been a cultural transformation. We are talking about these people returning to (a part of) their homeland after twenty years. Their return is mediated by the NGOs and sanctioned by the government. In what sense can we see this dynamism ever slowing down? It seems that dynamism begets dynamism, and that we will see rapid changes in this area on and on and on.

Steve Schwartzman: In thinking about this region we have to seriously revisit what has been a strong tendency among anthropologists and planners to imagine that the Indians are simply going to disappear. The Panará case and others show that, even where the situation suggests that the culture has no chance whatsoever, they can remain viable. So in projecting plans and zone use strategies, if you don’t take the presence of these groups into account, you are making a big mistake. Nevertheless, it is a very dynamic situation — Indigenous groups are changing in response to the dynamic processes that are going on around them.

Mac Chapin: To what degree do conservationist arguments support the Indians’ land claims? Specifically, since it is very difficult to get support for Indigenous rights per se, you need to overlay conservationist arguments and say that the Indians are the best managers of this land. For example, the EDF is an environmental group, not a human rights organization as such. What would happen if there were no environmental arguments?

SS: Naturally it depends on the context — which organizations, when, and where? Clearly in this case, and elsewhere in Brazil,
there has been a sea change in the approach taken by both international and Brazilian environmental organizations. At present, it is impossible to ignore the environmental logic of the defense of Indigenous lands in Brazil. This is essentially summed up in satellite images showing progressing deforestation. The Indians are among the only actors out there who have the capability and the legal mechanisms to stake a claim of that size where there is any contest at all. That’s not to say that the Indians are ideal managers, but that’s another issue.

Q: Was the decision to move back a consensus by the Panará, or did it come about some other way? Also, during their 20 year exile, did the government provide any kinds of services for them?

SS: Yes, it was pretty much a consensus decision. They wanted to move back to their traditional land, an area that they felt is better than the one they had been moved to. This has been their position to the government and to the other Indigenous groups in the Xingú Park.

At contact, in 1973, FUNAI set up a small area for them that included a couple of Panará villages. At that time, FUNAI was completely incapable of controlling the situation. Once road construction began, there was an epidemic, health care was sporadic, and no one could even speak with the Panará. It was complete chaos. They decided arbitrarily that, to save the survivors, they would move them into the Park where there were better services. In fact, by the standards of Brazilian Indigenous areas, the Xingú Park has better medical care and education and better access to trade goods. This helped the Panará to increase from 69 survivors in 1977 to about 170 today.

Kasia Grisso, Yale School of Public Health: You mentioned earlier that the Panará made allies among the other Indigenous groups in the Xingú. How have their actions affected these groups and their relations with them?

SS: Well, since the 1950s the Xingú park has existed as a substantial Indigenous area. It was created when the region’s traditional Upper Xingú culture was discovered. This included 7 or 8 groups speaking languages from 4 major linguistic families but sharing a common culture and living in peace. This impressed the Park developers, who saw the region as the last best defense for the Indigenous people. So these groups remain in the southern half of the Park, and, in the north, the Park is inhabited by groups that have been drawn in to protect them from the ravages of development.

The Panará were the last to be brought in and were brought in from the furthest away. When they arrived, in relation to the
other groups in the Xingú, they were wild Indians: they had no clothes, no white man’s goods, and they spoke no Portuguese. It was a horrible experience. They had more women than men and they spent their first two years there living in the villages of other groups, including the Kayapo — their most ferocious traditional enemies. Some of their women and children were appropriated by other groups, so they were really on the verge of extinction. Getting out from this and founding their own village was a very important event. Since then, they have developed amicable but ambivalent relationships with the other groups. Strategically, in terms of this project, the key alliance has been with the Kayapo. It is very interesting because these are exactly the people with whom they have fought for most of this century. There is an animosity, but also a kind of mutual respect. Both groups have a strong warrior tradition, their languages are related, and they recognize their cultural similarities. The Panará goals are strategically important for the Kayapo as well, since the Panará area will protect the major headwaters for the Kayapo region.

MC: To follow up, what about alliances with Brazilian groups?

SS: Well, they’ve also been critical. When they decided that they wanted to pursue indemnification and return, the Panará contacted individuals they knew. Among them was the former director of the Xingú Park, then the director of the Rainforest Foundation’s Brazilian partner. She took them to the Nucleus for Indigenous Rights, an Indian Law organization in Brasilia, which began analyzing their case and contacted the Ecumenical Center for Documentation and Information. They also asked after me, since I had lived there for a year and a half. Their general approach was to ask “Where are all the white people who have been through our village and will support us?” They contacted everyone they could. The groups who ended up responding were us (EDF), the NDICG, and the Fundação Mata Virgem, as well as the FUNAI administrator of the Xingú Indigenous Park, Megaron, who is a Kayapo and has been a fundamental point of support. This has worked well. There has been a kind of natural division of labor among the NGOs.
Indigenous Politics and “Local Heritage” in the 1990s: Shifting Concepts of Land Use, Land Tenure, and Self

Theodore Macdonald
Cultural Survival

ABSTRACT
The development of Indigenous political organizations in the Ecuadorian Amazon is illustrative of the state of affairs throughout the region. The moral economy that had governed inter-ethnic relations until recently has given way to a political economy in which Indigenous groups have come to understand the importance of defining the issues surrounding their relations with government agencies. This has led to Indigenous initiatives in land management and territorial demarcation, but also to an increasing focus on political activity rather than practical solutions that has made it difficult for these projects to progress beyond planning and training. Nevertheless, it is too early to predict the outcome of these developments, as they are ongoing.

INTRODUCTION
Over the past 20 years tenure regimes, land use and Indigenous political strategies in the Amazon region have been changing radically. This paper approaches the problem of what we mean by “local heritage,” a term that suggests permanence, with a specific question: Why do we now hear strong Indigenous demands for land and natural resources, yet witness “development” projects, particularly in forest management, the results of which suggest their inability to manage or sustain either?

Lowland South America’s rain forest communities host a wealth of Indigenous resource management projects, particularly forest management. Yet few if any are thriving and several heavily supported ones face economic crises and questionable social and biological sustainability. Others have simply collapsed. Ironically, in many project areas residents hold title to their land and understand that tenure security often requires “land use” programs; so the risks and incentives for sound management are in place.

Technical problems, in part, reflect inexperience and limited administrative skills. However, forest management and similar conservation projects also illustrate skillful use of national and international environmental concerns to establish political alliances and solicit economic support. Either observation suggests that some social science “remedy” may lie in creating or tuning a management machine, or exposing a hint of opportunism. Rather than rush to resolve a “problem” which we identify, this paper illustrates that much of the analysis still lies in defining a situation from the standpoint of local people.
TIME AND TENURE REGIMES

Several recent studies (e.g. Hardin 1968, 1977, Bromley 1992, McCay and Acheson 1987, Peters 1994, IASCP 1995) open debate on some common assumptions regarding land tenure, common property use, sustainable resource management, and Indigenous land use patterns. Some challenge the hypothesis that secure tenure leads to improved land management and careful stewardship. Others reject sweeping generalizations that common property invites mismanagement, environmental abuse and resource destruction.

Such broad tenure/use assumptions suggest that local concerns with tenure claims and patterns of land/resource use are consistent or permanent. However, any current picture is but a single frame arrested during a period of rapid change in Indians’ relations with broader national societies. For many native Amazonians the panorama extends beyond single family plots to include broad territorial and resource claims.

Indigenous peoples, particularly those involved in their recently-established organizations, now understand their situation through new forms of socio-political analysis. As these new “communities” alter their debate with the dominant non-Indigenous society and reconfigure their ethnic boundaries, land and resource rights have become the principal themes for that discourse.

However, and critical to the initial question, the analysis is not yet “operationalized” in terms of land and resource use. Tenure regimes remain as political concerns, characterized more by regular pushing, pulling, positioning and posturing than by clearly defined management plans and production schedules. Most land use projects serve largely as expressions of local control over land and resources rather than as exercises in its management.

Meanwhile, outside observers evaluate land use programs through objective but nonetheless static criteria and standards for social and biological sustainability. Consequently, many resource management initiatives, poorly understood by social scientists and barely underway, have been proclaimed successes while their shortcomings are either glossed over or denied. But, as several widely-known projects now either totter precariously or have fallen, their situations invite, perhaps require, analysis and evaluation from current, dynamic Indigenous points of view.

SHifting “ECONOMIES”

As with land and resource rights, changing concepts of “community” have produced new understandings of inter-ethnic relations and the Indigenous situation in general. Previously, inter-ethnic
relations in the Upper Amazon were understood largely in terms of a “moral economy” — a frame for ordering inter-ethnic relations, related norms and patterns of reciprocity, including rights to land, resources and the fruits of production (Scott 1976). Like any other, these relations developed over time and gradually assumed a set of norms which, though unbalanced and exploitative, served to guide interaction. That “moral economy” has collapsed in all but a few settings where missionaries or others provide essential goods and services.

Many Indigenous people now interpret their status in terms of a “political economy” — rules and practices resulting from systems of production and distribution of wealth. This provides a set of tools for understanding social and economic positions, and illustrates a status which Indigenous people now regard as unacceptable. It also identifies property which Indigenous peoples now claim or reclaim — land, resources, and culture. But “working relationships” to guide the use and distribution of resources remain to be defined through negotiation and practice. Meanwhile, emerging patterns draw from experiments with new, unfamiliar actors as well as reactions to the previous social order associated with a moral economy.

ECUADOR AS AN ILLUSTRATION

The Amazon Basin is a patchwork of cultures and communities. Nevertheless, in terms of local Indigenous organizations, recent political actions and community-based development issues, Bolivia, Brazil, Colombia, Ecuador, Peru and Venezuela share much in common. Ecuador, in particular, stands out as an example of organization, political actions, land use projects and international visibility. A review of the changing concepts of land tenure, resource rights and inter-ethnic relations there introduces issues common to the region.

ECUADORIAN INCIDENTS

Six key events in the recent history of Indigenous interactions with the national political process inform the present policies of Amazonian Indigenous groups in Ecuador. These events illustrate an ongoing effort to seize the initiative in land tenure discourse that in turn has moved Indigenous organizations onto the national political stage.

In the 1970s a North American agronomist designed an integrated land use system for the fragile tropical forest ecosystem of the Ecuadorian Amazon. He argued that his model would meet a family’s subsistence and market economic needs in an ecologi-
cally sustainable manner. When the scheme was presented to national agrarian reform officials, land use specialists and representatives of Indigenous organizations, it drew nods of approval from most. The Indigenous representatives rejected it summarily.

For them the project’s land-use technology was irrelevant; they opposed the size of the model. It was designed for a 50 hectare plot, the standard holding awarded to colonists by the government’s National Institute of Agrarian Reform and Colonization (IERAC) without ever taking into consideration Indigenous land claims.

Four years later the director of Ecuador’s National Forestry Directorate enthusiastically invited local Indigenous participation in conservation programs enabled by recent forestry legislation. The Indians rejected the offer to accept members of the Indian organizations as guards within protected forest lands. They argued that their organizations should have taken part in the formal meetings which determined the new rules, rather than assisting in their subsequent implementation.

In 1988, the new government of President Rodrigo Borja selected three close advisors who set aside three hours every Tuesday to meet with representatives of the Indian organizations.Indian attendance, however, was irregular and unenthusiastic.

Eight months later, three of the Indigenous leaders accompanied one member of the advisory committee and the Assistant Director of IERAC to a small jungle Indian village, Sarayacu, to negotiate a dispute between that community and encroaching oil exploration teams. Supported by over 150 community members, the Indians sequestered the government officials for several days until they finalized a broad agreement — referred to as the Sarayacu Accords — which focused on land rights, resource control, bilingual education and development programs. Ironically, these were the same issues which made up the agenda for the sparsely attended government meetings.

By the early 1990s Indian organizations were introducing claims for large Indian territories. In June 1990, government failure to follow through with these agreements helped spark a national non-violent movement, the Levantamiento General, and in late 1992 produced a long Indigenous march from the Upper Ama-

Supported by over 150 community members, the Indians sequestered the government officials for several days until they finalized a broad agreement — referred to as the Sarayacu Accords.
zonian town of Puyo to the national capital, Quito. The protests produced a presidential declaration recognizing their claims and promising titles. Similar political actions and subsequent presidential decrees occurred in Colombia, Venezuela, Brazil and Bolivia during roughly the same period.

These organizations, beginning largely in the mid-to late-1980s, then began to solicit and receive funds for community-based land use and resource management programs.

These incidents and activities highlight the ongoing evolution of a broad new social phenomenon — Indian organizations — which pervades much of South America’s political arena and challenges the previously clear lines of difference, subordination, public deference, and related norms and patterns of reciprocity. That transition took place in two distinct phases, each of which is marked by a different understanding of the relationships between Indigenous groups and other entities. Here we briefly review that transition.

PERIOD ONE

Development of a “Moral Economy:” Patron-Client Relations in the Ecuadorian Amazon

Community Land and Resources

For many Indigenous groups the Ecuadorian Amazon’s physical space was divided into a patchwork of kin-based settlements with borders defined by human use and reinforced by spirit beings. Until the late 19th Century, this space was violated only by sporadic travellers, government officials and missionaries. The few permanent mission sites and government settlements were small and the residents rarely ventured onto Indigenous lands. Inter-ethnic relations had little impact on the Indigenous social and economic life or the land and resources needed to sustain it (Macdonald 1979, Muratorio 1991, Whitten 1981).

As demand for the Amazon’s rubber increased in the late 19th century, merchants travelled up and down every tributary of the Upper Amazon in search of rubber trees and Indians to tap and drain them. As these merchants settled into the Upper Amazon, they altered inter-ethnic relations through regular and intimate contact with the Indigenous population. The merchants became the principal suppliers of manufactured goods and, in turn, the recipients of most raw materials. They also became vital intermediaries between Indians and local and national authorities. Without any pretense of
social or economic equity by either group, inter-ethnic relations were guided by clear but informal norms, mutual obligations and rules of reciprocity.

Impact on Economics and Settlement Patterns

In the Upper Amazon, labor performed for these merchants/patrons did not radically alter the Indigenous life style. Neither the nature of the work nor the hours spent performing it demanded drastic reallocation of time and energy. Nor did this labor force a restructuring of the residence pattern; much of it was performed within the settlement or during periods of temporary residence elsewhere. Existing concepts of territoriality were easily extended to establish areas for gathering gold and rubber. In addition, labor extended to the patron did not radically alter existing subsistence schedules or other aspects of resource and time allocation. In brief, the norms and rules of reciprocity which generated a moral economy required only minor shifts in time allocation to meet the demands imposed by the patron. A new inter-ethnic order was established but the social and economic patterns which had generated much of the existing Indigenous social order remained largely unmodified and subsistence patterns remained intact.

PERIOD TWO

Interpretation Through Political Economy

Beginning in the 1960s, colonization changed the lives and expectations of Indigenous peoples in Ecuador and other parts of the Upper Amazon. Colonists effectively ruptured the moral economy and signaled a qualitative shift in inter-ethnic relations. Previously, outside interests depended on the region’s inhabitants, either as souls for religious conversion or as sources of cheap labor. Colonists, however, generally regarded Indian communities as obstacles to their expansion. They were more concerned with displacing occupants than negotiating relationships with them. For Indians, personalized inter-ethnic bonds diminished or disappeared as relationships shifted to impersonal private enterprises, state bureaucracies and communities of colonists, all of whom threatened the previously secure rights to land and resources. They began to redraw their maps of ethnic boundaries and reinterpret the nature of inter-ethnic relations. They also began to organize, challenging the new powers and opening political space for themselves.
Ethnic Federations

Initiated in the Ecuadorian Amazon, Indigenous organizations, or “ethnic federations” (Smith 1983), have now established themselves throughout the Amazon basin. They have organized into local and regional federations, national pan-ethnic units, and, most recently, international organizations (Cultural Survival Quarterly 1984; Smith 1984). Most federations maintain three primary concerns: 1) defense of land and resources; 2) expansion and strengthening of their organizations; and 3) maintenance of their unique ethnic identity. Today, ethnic federations are recognized social and political forces, and have thus created niches for themselves within plural national societies. Recently, there have been efforts to incorporate them as the logical institutional link for work with development and environmental agencies (Wali and Davis 1992; Inter-American Development Bank 1993; Macdonald 1994). By the early 1980s, to an extent greater than in any other Latin American country, Ecuador’s Indian response to colonization and other external threats to their land and resources was the mobilization of a new national political sector.

Ecuadorian Ethnic Federations and Government Programs

1980-1984 The Roldos/Hurtado Administration: From Opposing Colonization to Promoting Land Rights

As a challenge to the national agrarian reform agency (IERAC) and a demonstration of their perceived land rights, several Ecuadorian federations formed a regional Amazonian group, the Confederation of Indigenous Nations of the Ecuadorian Amazon, CONFENIAE. Their 1982 congress declared that IERAC should recognize and title land along traditional boundaries, acknowledging and formalizing an existing order rather than dividing territory as if it were state property.

In 1981 the Ecuadorian congress passed a set of forestry laws — the Ley Forestal y de Conservación de Áreas Naturales y Vida Silvestre. These laws established forest management as a national priority and encouraged the development of forestry programs by exempting from agrarian reform all protective forests, lands in permanent use for forest resources, and those with established plans for reforestation. Formally at least, this put forestry and conservation programs on a par with more environmentally destructive programs such as cattle raising, and thus encouraged programs like community forestry.
But, as illustrated by the incident mentioned earlier, Indian organizations regarded the legislation as yet another government effort to exercise control over their land and resources without consulting with them. Rather than focusing on ways to benefit from the laws, the organizations were more concerned with how the laws were drafted and promulgated.

1984-1988 León Febres Cordero: Political Opposition and Indian Territories

Beginning in 1984, government leaders under a strongly neo-Liberal government led by President León Febres Cordero advocated unrestrained economic activities for the private sector, encouraged colonization in the Amazonian region and publicly opposed popular organizations. IERAC halted all communal land titling, yet government-awarded concessions for African Palm plantations increased and expanded rapidly, often on Indian lands. By 1985 these tactics provoked outcries from the regional and national Indian organizations (Amanecer Indio 1985) and in broadly circulated public documents and publications (CONFENIAE 1985; Carrion and Cuvi 1985).

The León government produced an atmosphere in which popular actions were treated as a threat to the state, and were met by the unprecedented presence of heavily equipped and highly visible police and sharp government statements. Most NGOs and other groups remained quiet out of fear that some form of government violence would be visited on the relatively peaceful country. By contrast, CONFENIAE’s position became even more militant. Moving deftly within a delicate political atmosphere, the Indian organizations continued to hold public meetings and maintained a relatively high public profile.

At their 1986 Congress CONFENIAE again focused on land titling, tenure regimes, and resource management. But, rather then continue to ask IERAC to title Indigenous lands, CONFENIAE resolved to oppose any further colonization, to seek an end to titling of colonist and agro-industry lands and, more importantly, to staunchly defend the area’s increasing movement towards “self-demarcation” (auto-lideración). In addition, and as a potential stimulus to future community-based forestry, the Indian organizations stated that they would take charge of any development programs within the communities.
From Political Organization to Resource Management:
The “Era of the Projects”

Until the late 1980s, the federations had focused on institution building at the local, regional and national levels. But many of the communities began to challenge the organizations, some for personal or petty political reasons and others because they questioned the exclusive focus on organization.

At the same time a growing national and international environmental movement took an intense interest in the rainforests of the Amazon. National and international cries to save rain forests were accompanied by a significant increase in international funds available for local projects. Indian groups received funds from a variety of sources and frequently referred to the shift as the “era of the projects.” In late 1987 one of CONFENIAE’s members, the Federation of Indigenous Organizations of Napo (FOIN) began the country’s first Indigenous effort to link land tenure to claims of sustainable land use.

The project’s immediate spur appeared following a March 1987 earthquake which swept away a sector of the only road which connected the northern Amazon with the capital, Quito. The government quickly cut a new road through relatively unmodified tropical forest dotted with Indian communities suddenly exposed to colonist invasion.

Scattered Indian households quickly cleared forest frontage to demonstrate their presence along the road. This small demonstration effort soon escalated to extensive logging as individual purchasers and wood product companies bought up any logs and sawn lumber visible from the roadside, and then maneuvered to obtain timbering concessions for additional cutting in the communities. The offers led to internal disputes in several communities as Indians maneuvered against each other to get the cash from lumber sales, in spite of ridiculously low prices.

FOIN’s directors recognized that the prices were unacceptable and that extensive logging threatened these communities’ future resource base. They argued that a resource management project would generate income and provide security for the future. This also gave FOIN an opportunity to provide the services associated with this management and requested by its affiliates. In March 1988, they began the first phase — research and planning. Nevertheless, while motivation was sufficient to start the work, it was not enough to institutionalize a long-term technical and administrative program.
Expanding “Auto-Lideración”:
From Individual Communities to Ethnic Territories

Beginning in 1988, several Quichua federations shifted their
attention to demarcating Huaorani Indian territory and began to
physically cut lines in the forest for a 600 km perimeter which used
Huaorani territory as one edge of a series of adjacent ethnic territo­
ries. The initiative shifted the Indigenous position from one of
securing community borders to defining a larger unit over which
they claimed a set of rights.

The immediate, expressed concern was simply recognition that
rights existed and could serve as a basis for future discussions over
resources such as oil, minerals, and forests. This was a quantum leap
in their perception of the state. They no longer focused on demon­
strating possession through use; such arguments assumed that the
State had the right to place conditions on Indian lands. Resource
management projects, therefore, no longer carried the same weight.

Kuna Technical Assistance

In early 1989, training in general resource management planning
and conservation of fragile lands began with support from Panama’s
Kuna Indians, who were among the best trained in the hemisphere.
FOIN invited two Indigenous staff members from the Kuna’s
Project PEMASKY to train the staff of their project (Project
PUMAREN) in the general procedures of conservation and resource
planning.

The team continued its work, but it was unproductive in several
ways — project funds were frequently diverted or withheld, work
schedules were irregular, and travel funds for work within the com­
munites were not disbursed. Consequently, the communities, aware
that some sort of federation-run project was underway, were either
uncertain of its work or questioned its utility. Moreover, staff enthuis­
iasm diminished and several members began to treat their incipient professionalism simply as a means to regular paid employment. In
brief, the organization’s lack of support did little to enhance the pro­
ject’s status among the technicians, the trainers or the communities.

Forest Management — Lessons from the Palcazu

After initial training the team focused on production systems.
They sought and obtained training in natural forest management
from members of the Yanesha Forestry Cooperative of Peru’s
Palcazu Valley. In January 1991, technicians travelled from Peru to
identify forest lands where natural forest management would be
most appropriate. Surveys indicated that no individual community
had sufficient forest to support a single-community-based forestry enterprise. Accordingly, several communities formed a coordinating committee to parallel the FOIN team, but they soon sought to undertake the work independently. They did not see much value in the technical team and also began to question the idea of “common forest property.” So community members redesigned the so-called “community forest” by mapping the land into single family-owned plots.

Meanwhile, the federation’s enthusiasm shifted further toward the politics of positioning. At present a variety of activities are still underway in the area, but progress is slow. Local and international NGOs seek alternative international markets for PUMAREN products and the project staff, as well as the communities, have received support and advice from several experienced and enthusiastic technicians who have worked with the Yanesha Forestry Cooperative. Nevertheless, there has been a progressive loss of interest on the part of the federation and an increasing sense of cynicism on the part of the communities.

CONCLUSION

Drawing heavily from observations on a specific country and project, this brief paper nonetheless suggests a regional pattern. After a burst of enthusiasm, as the community-forestry project moved to the details of project planning and implementation, the presence and support of the federation’s leadership diminished and focused on national and regional political activities.

However, now is not the time to pass judgement on the organizations or to suggest that community-based forest management is impossible under any circumstances. Difficulties arose when the federations tried to balance their political priorities with the detailed technical and administrative work needed to design and implement resource management projects at a community level.

It would be heartening to suggest that the two needs can be realized at the same time, but, at the moment, this is simply not the case in the Upper Napo. Moreover, reports of project work in other areas indicate that few have advanced beyond planning and training. Similar situations mark most Indigenous resource management projects, including those using sophisticated electronic and similar technology, as illustrated in the Winter 1995 Cultural Survival Quarterly (Geomatics: Who Needs It?). Most projects are still demarcating or planning future work. Few have become effective production units or successful enterprises.

Planning and training are essential phases of all projects. But, to suggest that such a broad range of local projects now find themselves at the same stage of project development simply by coincidence
pushes the limits of credibility. The similarities suggest and support the initial observation: though Indigenous organizations now evaluate their situation skillfully through a broad political economic frame, the organizations and communities have not yet moved to operationalize that understanding. That is not to suggest that they cannot or will not, but simply that they have not at present. Despite the desires of international observers, support groups, and local communities for rapid advances to resource management, they do not appear imminent.

Though potentially discouraging, the present situation is not cause for despair. The changes in status and role which have come about in many Indigenous communities since the appearance of local organizations illustrates some of the most successful and non-violent social change in the hemisphere, if not in the world. These efforts should be recognized and applauded for what they are and where they have taken Indigenous peoples, not elevated falsely or denigrated prematurely for what they are not.

REFERENCES


**Theodore Macdonald**
Director of the Cultural Survival Center, the research wing of Cultural Survival, and Associate Director for the newly-established Program on Nonviolent Sanctions and Cultural Survival at Harvard University’s Center for International Affairs. After serving in the Peace Corps in Ecuador from 1967-1970, he studied Anthropology at the University of Illinois-Urbana, where he received his doctorate in 1979. Since 1974 he has conducted field work among the Quichua Indians of the Ecuadorian Amazon. As Project Director and also as South America Resource Management Program Director for Cultural Survival, he has worked with native peoples throughout Latin America since 1979.
The tensions in Ecuador today are generated from issues regarding the relations of Indigenous peoples with the government, international aid agencies (NRDC, USAID, etc), international resource corporations (Conoco, timber interests, and so on), advocacy groups charged with protecting or arguing for their interests, and with other Indigenous groups.

The political structure is of primary importance in this discussion. The government is unwilling to treat the Indigenous organizations as equals, since this would justify the Indigenous peoples' claims to land tenure. Also, there is a question as to who is empowered to govern funds received in the form of endowments for resource extractions. The gift economy is also problematic because money and material benefits are provided to appease the groups rather than providing these benefits with a defined, measurable challenge to put them to a certain use.

One of the challenges that groups like Cultural Survival must face is developing negotiation skills within the Indigenous communities. There is little doubt that conflict and disagreement will continue. As a result, the only way to avoid bloodshed is to empower the Indigenous peoples with the negotiating skills necessary to achieve their goals, instead of using international aid groups as "translators" of the needs of the community. The image of the large, powerful, wealthy foreign entities arriving to save the small and helpless native Quichua Indian is simply no longer an adequate or justified perspective.

There is a commonly held belief that the Indians will destroy their lands if they are not provided tenure, but the reality presents a much different picture. They do not want to build or cultivate their lands simply to gain the "legal" right to it. Management plans may be useful, but they must come from the Indigenous parties. The Indians have excellent ideas, but due to overenthusiastic foreign involvement, a lack of a negotiating framework or background, and a political system that is slow to accept this potentially threatening entity, they have been unable to articulate these ideas.

The discussion commenced with a question regarding the Conoco - Natural Resources Defense Council (NRDC) negotiations in Ecuador, in which the NRDC represented Indigenous groups who would be affected by Conoco oil exploration. Negotiations became very complex and costly, and Conoco eventually withdrew. This case

The only way to avoid bloodshed is to empower the Indigenous peoples with the negotiating skills necessary to achieve their goals, instead of using international aid groups as "translators" of the needs of the community.

For more information about the Conoco-NRDC negotiations, interested readers are referred to articles in the September 27, 1993 and May 2, 1994 New Yorker, as well as letters in the August 25, 1993 New Yorker.
was presented as a model of the inability of those concerned to listen to or allow the Indians to speak for themselves and, instead, impose what is believed to be best for them by outside groups.

The following excerpts are highlights from the discussion:

**Emily Harwell,** **Moderator, Yale F&ES:** I’m interested in learning more about what is generating the current tensions between local organizations and community members who don’t see these organizations as benefiting them.

**Ted Macdonald:** It’s a Pandora’s box. There is no community with a singular focus, in which everyone is always in total agreement. This would really be the subject of a whole other seminar.

There was an earthquake in March of 1987 that destroyed the road between the oil fields and the capital. So, very quickly the Ecuadorian government cut a road through what was virgin forest, an area containing about 40 Indigenous communities. They did this with the support of USAID under some very strange circumstances — the government had been claiming that everyone in the region was literally starving to death because supplies had been cut off. Of course, the road had only been built a few years before, and supplies were continuing to be transported by river, as they had been for several thousand years.

USAID’s modest contribution enabled us to work with the communities. Because the road had been opened, the Indian organization realized, there would be an influx of colonists into the area. What this organization was very good at was alerting the local people to this, which was something they had not realized. Essentially what people did was build a shack and clear some forest to plant corn along the road to demonstrate their presence. Loggers began to come through, buying trees for about 75 cents a piece. Though a small amount, it was a source of money where there had been none. So, the people were being encouraged to deforest, and the leadership of the organization at that point asked us to bring in the technical assistance that would help develop a natural forest management and conservation program.

When the government changed six months later, and the new regime eased the aggressive colonization policy and agreed to recognize Indian organizations, interest in the project dropped off, because it had been seen primarily as a challenge to the old government, as a way to demonstrate control over land and resources. Even so, there was still tension within the communities. There were people who wanted to continue selling wood, while others were more concerned about tenure. The communities
began to fight among themselves and to question these organizations, which were functioning in the political arena and traveling to Quito and Washington and so on. There was a certain amount of jealousy, and there had been no tangible results. So one of the goals of our work was to provide the long-term technical team that could actually provide services to these communities, separate from the political maneuvering.

There was still a lot of tension. The earlier government had divided many communities by promoting alternative, funded organizations, and by giving gifts to communities. Schoolhouses and the like, while not necessarily addressing the political goals of the communities, were at least tangible benefits.

There continue to be significant disputes between local organizations and the members of the communities. These organizations are, in fact, democratic grassroots representation, yet there remain tensions. Our strategy has been to deal with these federations so as to come up with regional strategies, rather than working simply with individual communities, which had been the pattern as far back as the 1950s. In practice this is difficult and somewhat frustrating.

Nevertheless, the political gains made by these organizations are real and are very significant. They do represent the communities, and they are quite strong.

Celia Nyamweru, Anthropology, St Lawrence University: I have two questions. The first concerns the role of oil companies in the region, as described in Joe Kane’s article. I would like to know what your take on that article is because it seems that the international oil companies are going to move into the region no matter what. My second question is more general — to what extent do you think the Indigenous posture, i.e., that they own the land and that they can do with it what they wish, regardless of any concerns of sustainability, has been stated as an overt agenda, and what will groups like Cultural Survival do in response to this?

TM: The Indigenous groups do claim the right to manage their lands as they please, but no, they do not say that they will destroy the land. This idea is part of a political game, and you need to ask who is saying this. You need to remember that there is a significant gap between Indigenous communities and the self-proclaimed “environmental” community, as Janis pointed out last night.

As for Conoco, we felt that they were the one company in the world (Chevron is now talking about it in Papua New Guinea) that was willing to talk to Indian and environmental organizations and to meet mutually agreed-upon standards. We met with
them, and they said they had a commitment to this approach, and were ready to negotiate with Indigenous groups. They asked us to facilitate the process, but we declined — we said that first we should check in with the organizations. I think that Conoco was prepared to get involved in making endowments to the communities and so on, but they got scared away when the negotiation process started to look like it would be messy, with certain other environmental groups opposed to the whole idea. Another company got the concession an hour after Conoco withdrew, and they’re doing everything the wrong way. I think the article was way too simplistic, because it’s not just a question of big, bad oil companies versus innocent natives.

**CN:** Would the Ecuadorian government allow direct negotiation between the Indigenous people and the corporations and Indigenous administration of any endowments that come out of such negotiations?

**TM:** My sense is that there was enough international leverage to have pushed the government to accept some arrangement of this sort — an international body that would administer the endowment. Everyone could have benefited from this arrangement — the humane oil company, the pioneering government, and of course the Indigenous groups. I think that this is a tragic lost opportunity.

**Julie Greenberg, Yale F&ES:** It’s clear that you think that the allegations made by Joe Kane are too strong, but could the NRDC have taken better steps to find out what the Indians wanted?

**TM:** The biggest single problem was that they tried to move too fast. They were being pressured by Conoco to come up with an environmental plan. They should not have agreed to fit into this time frame for someone else’s advantage. They needed more time to be able to talk with the communities and to reach a consensus.

**Andrea Esser, Clark University:** What groups does Cultural Survival talk to in developing strategies to help these people? Specifically, what are the gender, class, etc., patterns developed from interviewer to interviewer? For example, I know of one case in which a male interviewer spoke with only male group members, yet used this sample as representative of the whole.

**TM:** Yes, this is a huge problem, and it is often based on assumptions that are simply not true, such as that only men engage in forestry. It is a serious problem that cannot be solved by any formula. This is where anthropology comes in — you need to elucidate the nature of the order in the community so as to be able to know if what you are hearing is representative of the community or not. For any project, you can find somebody in
the community who is interested in it, but does that make them representative? This is why projects that are initiated by a community usually get more long-term support from the community. Gift-like projects that come down out of the heavens often don’t work very well because they don’t fit into the standard norms of reciprocity. It’s someone else’s idea, so there’s not a lot of interest in getting it done. There is a discontinuity between what is given and what is expected, and many communities are based on reciprocity. It goes back to the larger question of how one deals with a community. It is not sufficient to dump money on the people, you need to be seen as working for them.

Michael W. Finkbeiner, Land Surveyor: How does the situation in Bolivia compare to that of Ecuador?

TM: Both countries have similar political structures. I have been speaking only of the Amazonian peoples, not those Indigenous people in the highlands. Ecuadorian Indigenous groups have copied the structure of Bolivian groups — the issues of land, natural resources, and dignity. At present, Bolivia has no incentives in place to protect the forest, so, economically speaking, it is better to cut them down, and the Indigenous groups are having a rough time.

Henry Kernan, Forestry Consultant: Do Ecuadorian citizens still have the right to clear land and cut timber on public lands?

TM: Yes, but those lands are being increasingly regulated, and the right applies only to unoccupied lands (tierras valdeas), which usually are also Indigenous territories. This is where demarcation and extractive reserves and so on demonstrate use on lands that do not appear to be “used” in the sense encoded in these laws.

John Bela, University of Massachusetts: How successful are local Ecuadorian groups compared to the larger environmental organizations? What impact is David Neal and his environmental group having?

TM: David Neal, of the Missouri Botanical Gardens, is a salvage botanist, going ahead of the bulldozers, climbing trees and gathering data prior to destruction. He is a bit naïve and has been criticized for being too cooperative with the corporations who are mining the areas. We have cautioned him about this but, on the other hand, he sees this as an opportunity that he can’t turn down because the areas will be lost regardless.

As for the other part of your question, the answer is that it is mixed. Some environmental groups ally with local organizations to help in management, while some have clear political agendas. Leftist alliances, for example, try to construct a permanent opposition to the government through the local Indigenous groups.

There is a discontinuity between what is given and what is expected, and many communities are based on reciprocity. It goes back to the larger question of how one deals with a community. It is not sufficient to dump money on the people, you need to be seen as working for them.
The Experience of the Alto Juruá Extractive Reserve with Vegetal Leather: Engaging Forest Product Markets for the Survival of Ecosystems and Cultures

Chico Ginú
Associação Alto Juruá

ABSTRACT

The Alto Juruá Extractive Reserve, in western Amazonia, is beginning to produce vegetal leather, a value-added rubber product used in the manufacture of shoes. The production of vegetal leather allows the people of the reserve to make a better living from forest products than is possible through extraction alone. Additionally, because the management of this project is local, production of vegetal leather allows the people of the reserve to work in dignity. In turn, this strengthens regional efforts for the conservation of forested areas.

I’d first like to say good afternoon to all of you, and to thank you for inviting me here, to be here among you for the first time.

I don’t have any slides to show you, but I do have my experience — my computer is my head. I will first describe our experience with vegetal leather in a few words.

The economic crisis in Brazil over the last few years has had a great effect on the traditional peoples of the forest, rubber tappers, and Indigenous workers, and has put their lives into a delicate balance.

VEGETAL LEATHER

The idea of producing vegetal leather came from the rubber tappers themselves, partly in reaction to the crisis we have been suffering in Brazil from the fall in the price of rubber. We had to search for an alternative — a way to produce rubber products rather than just sell the rubber itself. Vegetal leather is produced by coating cloth with raw rubber and then smoking it to make a durable, waterproof material. This technology had been used for years by rubber tappers to make waterproof bags out of old sugar sacks.

The proposal to develop vegetal leather was sent to Ecomercado in Rio de Janeiro and to Déjà Shoe. It came from rubber tappers in Boca do Acre who had started an experiment working with vegetal leather. So far it has been a very positive experiment — here I have a pair of Déjà Shoes made with vegetal leather from our area.

In the Alto Juruá Extractive Reserve (AJER) we began experimenting with producing vegetal leather last year. We produce the best — 96% of our product is of high quality, suitable for use in shoes.

Next to the extractive reserve there are two Indigenous communities — the Yawanawá and the Cashanawá — who are also producing
and testing vegetal leather experimentally. It appears to be a viable response to the economic situation that the Indigenous people and the rubber tappers are facing today.

Why are we concerned about producing products from extractive activities? We are concerned because we are trying to improve the lives of the people who make their living from these products. We see vegetal leather as one of the real economic alternatives to the situation we face today in the Amazon, because this product is of very high quality.

With rubber there is a market problem — there isn’t one. Vegetal leather is an alternative that creates a market. However, we still face the same problem in that the production of vegetal leather does not guarantee a market for the rubber produced by the four different communities involved in this project. It is simply not yet enough to fulfill the needs of these communities.

We are just now in the beginning of this experiment, but our vision for the future, and the vision of the social movements with whom we work, is that we will produce not just the vegetal leather, but also the finished product — the shoes. However, in order to do this we need, first, to establish a market.

I’d like to stop soon so I can leave time for questions, but first, I’d like to mention our relationship with and the work we have been doing with the Indigenous communities. We have been working with them for many years, and I would like to tell you about some of the concerns we have.

CONSERVATION AND PEOPLE

One thing that I have heard about often, in Brazil and in my travels, is that everyone is always talking about biodiversity and conserving biodiversity — fighting to save the green and to keep the forest standing. However, what we need to start talking about is the life of the people who live in the forest.

Unless we can support the people who live in the forest, by helping them with education and health care, for example — unless we give the people who live within the forest a way of living there — then the forest will not continue to exist. Even today we have heard people asking “what will become of the Indigenous and traditional people of the forest?” I say that they will not lose their traditions if we are able to support them. If we are able to support them in these traditions, then we will preserve the green — we will keep the forest. If we speak only of preserving the forest without helping the people, then, as we speak, it will burn.

We can also see that if there was not this resistance, this struggle, on behalf of the Indigenous and traditional people of the forest,
there would not be the forest biodiversity that we still see today in
the Amazon.

Talking about conservation and preservation of the forest is very
interesting, but we must actually work to support the people who
live in the forest, and help them to continue living in the forest, but
with a better quality of life. If we do not do this, then the forest will
die. Unless they have some way of living in the forest, the people of
the forest will have to turn to cutting wood, commercializing game,
or working for ranchers. In the past, Indigenous people and rubber
tappers often worked for landowners for years and, at the end, had
nothing to show for it but a gift.

Though some Indigenous people have lost their cultures, this is
not because they wanted to lose them, but because they have been
forced into it by outside forces. For example, in the 1940s, and more
recently, during the military dictatorship, people were sent into the
forest to kill Indigenous people. I think it’s very sad when you have
people killing other people, and Indigenous people are human be­
ings as well, after all. This is a tragic situation and we have to re­
member that losses of culture have been forced on these people by
outside forces.

I would like to speak less to allow more time for questions about
our experience in running an extractive reserve. I am entirely at your
disposal for the next two days — which really is not enough to de­
scribe my 17 years spent working in this area.

QUESTION & ANSWER SESSION

Q: Does the independent production of vegetal leather further
the tension between the producers and local cattle ranchers?

CG: The violence in these areas has decreased, in fact, because
vegetal leather is being produced from areas inside Indigenous
and extractive reserves. These reserves were already demar­
cated by the government, so production there does not affect
relations with the ranchers. The economic situation in Brazil
is such that it does not affect only forest workers — it also
affects the ranchers who are living off their land. Nevertheless,
the violence in our area has diminished, partly due to pressure
from within our communities as well as from outside. For
that, I would like to thank those of you from outside of Brazil
who exerted this pressure to stop the violence in my area.

Q: To what extent has the market for vegetal leather and other
products reached beyond green consumers? Is there a market
in Brazil — do consumers in Brazil see this as a product out
of their own forest?
Right now we’re really still in an experimental phase, so the product does not yet have a large market. We hope that in the future we will be able to reach a larger market both in Brazil and internationally.

**Chico Ginú**

Mr. Ginú is a rubber tapper from the Alto Juruá river in the state of Acre, northwest of the Amazon. He was recently elected president of the Alto Juruá Extractive Reserve (AJER) dwellers association. Despite strong local opposition from rubber barons and cattle ranchers, AJER has fulfilled all the legal requirements necessary for rights to use the land. They have organized a cooperative, the Associação Alto Juruá, and encourage active community participation.
Chico Ginú Working Group

The discussion focussed on the events leading up to the formation of the Alto Juruá Extractive Reserve, and covered some of the conceptual details of administering an extractive reserve.

**Beto Borges, Rainforest Action Network**: The importance of adding value to forest products and the importance of catering to the green market is always mentioned. However, Sharon Flynn from CI said that the green market is not a reality, that people are not really willing to pay more for green products. What does the Rubber Tappers Association think about it? What is the best way to deal with this type of green product — one that claims it will help the rainforest? Might this green market be just a passing fad and might it not be better to study the real market?

**Chico Ginú**: This problem is one that we have always had: dependency on outside forces. That is why we are doing this experiment right now with vegetal leather. This is an experimental process that came from us. The idea is to create a direct link between the community and the market. We are trying to link the community directly to the market, because if we have an intermediary it is always the producer that ends up losing. So, in our work with Déjà Shoe we are very thankful for this project we are doing with them, but we have no intention of staying only with them. We have to go beyond and look for other markets. Vegetal leather is a new process, and we are also looking for other new products from nature. We know that alternative products exist in the forest, but we need more study and research to identify them.

**Peter Wilshusen, moderator, Yale F&ES**: I would like to know if dealing with the market and the influx of income from this new product is causing any adverse impact in the community.

**CG**: Well, the real problem is always the fact that we do not have money. So, to deal with this new source, we have a sector which works with finances to administer the money.

**PW**: I asked this question because I know of many organizations that began with no money and experienced problems when outside money began to come in. Still, it appears that AJER is more organized than these groups, and might be better able to cope with this situation.

**CG**: We hope that in the future we will develop our own projects. Right now we need outside help, and contributions are welcome, but in the future we want to do things on our own, because ultimately, we do not want to be dependent on outsiders.
Austin Troy, Yale F&ES: Does your organization have any connection with the government, local or regional?

CG: The extractive reserve is in a federal area, and sometimes we get some support from the regional and local governments, but the main connection is that the federal government demarcated the area.

Steve Schwartzman, Environmental Defense Fund: Could you explain the history, the process, and difficulties in forming a concession and developing a management plan?

CG: The extractive reserve started as a resistance movement by the rural workers’ unions. In 1978, when the first union offices were founded in the seringais — the rubber producing states — there was a lot of pressure because this was something very new and many people did not know what to think about it. Most of the land was owned by large ranchers and seringalistas (rubber barons), and the rubber tappers had no rights, not even the right to set their own prices for the products they made. You mentioned that 70% of the land in Brazil is owned by 1% of the people, but in our region, 100% of the land is owned by them, so there was considerable pressure exerted against the unions. Rubber tappers live isolated in the jungle, without access to education or health services. Often, for example, if tappers sold rubber to someone other than the rubber baron, the land owner would bring in the police to beat or kill the workers.

So, we started to become more organized, and we based our organization on the Estatuto da Terra — a 1964 law stating that a person could lay claim to land for himself if he or she lived peacefully and uncontested on it for a period of time. This was an old law, one that was never enforced, so part of our struggle was to use the legal system to make sure that the statute would be respected. In 1985 we had the first national meeting of rubber tappers and since then, our movement has been growing and growing.

So, the Conselho Nacional dos Seringueiros (CNS, the National Council of Rubber Tappers) came from the union movement and we tried to have more power in the national and international arena. The major fight of the CNS was the creation of the extractive reserves, which is related to agrarian reform for the rubber tappers. In 1989 we had the second meeting of the CNS and we created a Board of Directors for the Council, because before we had only members. After this second meeting we started to move ahead — towards creating the extractive reserves. The purpose of the extractive reserve was the expropriation of land from rubber patrons. The land would become...
owned by the federal government but the rubber tappers would have the right to live on and to use the land.

In the first proposal for the creation of an extractive reserve, we had support from the Minister of Justice and the Attorney General, and we were able to create the first Extractive Reserve, the Juruá, and launch the movement.

Another thing that helped our movement was the death of Chico Mendes, because it created national and international pressure. Thereafter, the Brazilian government started to expropriate land to create the extractive reserves. But then things stalled, and for two years the extractive reserves existed only on paper.

Eventually, we had to pressure the government to implement the decree, so that the reserves could become a reality. In 1991 we had two general meetings with all the people in the communities and with technical support from professors and anthropologists. There, we discussed a plan for the use of the reserve. Then we submitted our land use proposal to the IBAMA, the Brazilian environmental agency which would have the responsibility of administering extractive reserves. IBAMA analyzed our plan and made comments, and we spent 6-8 months in this review process. The proposal kept coming and going with corrections and changes, and in the end, the final changes were completed last October 7.

Now we are using this plan and soon, by next April or May, we will receive the formal concession that will give us legal rights. So, for example, in the same way that the Congress makes laws under the Constitution, in the same sense we created the laws for the extractive reserves, and these laws are going to be observed by the people who live there. This land use plan encompasses everything — fishing, hunting, extraction of forest products, and everything else. This document regulates the use of the reserve. Next May we will get the legal document that states that the land is owned by the government, but that we, the rubber tappers, have the right to live and work there for the rest of our lives — we just cannot sell it.

Andi Eicher, Yale F&ES: If someone in the community breaks the rules, for example, tries to sell or clear land, how will you deal with it?

CG: Well, the government will not hire a bureaucrat to monitor land use in the reserve — they do not like to live in the forest. When we created the extractive reserve we became a legal entity with autonomy, so we can have our own rules. We created a Board of Directors that is elected by the people of the community, and we have people from the communities being trained by IBAMA to
be monitors of land use. These people are responsible for monitoring the land and, if infractions happen, they will inform the Board of Directors.

The incident will be discussed by the Board, and if they find that our community laws have been broken, people will be penalized for breaking them. However, this will not be done in a violent form.

I have two examples of community rules that are fundamental to the management of the reserve: 1) if a rubber tapper moves from an area to work in another part of the reserve, he must inform the Board; 2) if he wants to cut a tree to make a boat, he should get authorization for this. Why are these rules necessary? Because we have registered the location of each rubber tapper to control extraction, so we need to know when people move. Also, the authorization to cut trees is necessary because there exist outside pressures from people who want to buy timber, and we have to prevent the destruction of the reserve.

**BB:** Let’s say someone is breaking the rules, for example, hunting with a dog. What would be the penalty?

**CG:** Usually, in the first case a warning is given to the person. If the person breaks the rules again, the community meets and decides what penalty can be applied. In the worst case they may even expel the person. This has never happened yet. What often happens is that the person is reprimanded by the community, and the individual chooses to obey the rules thereafter.
Neoliberal Ecopolitics and Indigenous Peoples: The Kayapo, The “Rainforest Harvest,” and The Body Shop

Terence Turner
Department of Anthropology
University of Chicago

ABSTRACT

Even though the “Trade Not Aid” program undertaken by The Body Shop in Kayapo communities has been touted as the realization of the “Rainforest Harvest” approach to conservation, it is in fact a wage labor relationship whereby the Kayapo are not compensated for the real product they provide The Body Shop: their photographic image. Furthermore, this program is but one part of a portfolio of income sources available to the Kayapo, and does not prevent them from engaging in environmentally exploitative contracts with loggers and miners, and so should not be seen as an exclusive alternative to environmentally damaging land use practices.

The Kayapo, an Indigenous nation inhabiting the southern fringes of the Amazon forest in central Brazil, have gained global renown for their aggressive, politically astute, and amazingly successful defense of their traditional homeland from invading settlers, land speculators, miners, and government developers. Over the past two decades they have made themselves a successful test case of the ability of an Indigenous Amazonian society to defend its territory, operate effectively in the national and international political arena, and selectively adopt modern technologies such as video and telemedia without sacrificing its essential cultural autonomy. Recently, the Kayapo have become a test case for another major issue for contemporary ecological and Indigenous advocates: the effectiveness of the commercial marketing of forest products as a strategy for saving the forest and its native inhabitants from destruction and dispossession by development.

This approach, a synthesis of free-market liberalism with activism in defense of the environment and the survival of Indigenous cultures and forest peoples, has been baptized the “Rainforest Harvest” by its main theoretician and most prominent practitioner, Jason Clay, until recently the director of Cultural Survival Enterprises. The basic idea of the “Harvest” approach is that demonstrating that rainforest ecosystems can be economically productive, by getting Indigenous communities and other forest dwellers involved in sustainable kinds of production of marketable forest products, is the only realistic way of saving them from economically motivated destruction by settlers, ranchers, loggers and miners. Making the ecosystem yield a profit, proponents of this approach argue, is in the long run a more effective and reliable way of saving it than conventional approaches relying on aid and political protection from gov-
ernments and private organizations. Commercial production of ecologically non-destructive types, so the argument runs, is also superior to dependence on aid as a basis for the coexistence of Indigenous communities with the outside world. At the same time, it provides them with a more reliable and less environmentally destructive source of funds to meet basic needs such as medical, educational and other services than either government aid or destructive forms of extractive enterprise such as gold mining or logging.

The approach clearly fits in with the currently fashionable neoliberal idea that the free market is the best solution to social and economic problems, and that for-profit capitalist companies are the most effective agents of social policy.

The British-based cosmetics firm, The Body Shop, has adopted this ideologically congenial approach as the basis of its marketing appeal, and has launched several projects for the ecologically sustainable production of components of its cosmetic products in Indigenous communities in various parts of the world, the most prominently featured of which are located among the Kayapo. It is important to be clear that The Body Shop’s “Trade Not Aid” projects, as it calls them, despite their superficial appearance as instances of the “Rainforest Harvest” model, are not really a fair example of Clay’s approach, which assumes genuine profit-regulated production and aims at volumes sufficient to permit competition in local and world commodity markets. The Body Shop’s Kayapo projects, by contrast, do not constitute market-regulated production in this sense; they are really just for show, or as the Brazilians say, para Ingles ver (“for the English to see,” an expression left over from the days of the slave trade, when the Brazilian navy made a show of enforcing the British Navy’s ban on the importation of slaves).

Both the “Rainforest Harvest” approach and The Body Shop’s “Trade Not Aid” program have come in for a good deal of cogent criticism, which in spite of the real differences between them applies in some measure to both. The most trenchant of the critics, Stephen Corry of Survival International, has distinguished between straightforward “fair trade” projects designed to help local communities produce for local markets, on terms that guarantee them a fair return for their products (which he supports), and Rain Forest Harvest schemes like The Body Shop’s Kayapo projects in the following terms:

[Rain Forest] Harvest projects [such as The Body Shop’s] relate explicitly to trade with a foreign company ... there is no local market whatsoever. The company is able to set the price unilaterally, and to dictate how much or how little it will buy.
This is dependence, not empowerment ... It is simply another example of a powerful company selecting and controlling a powerless labour force, in a way not dissimilar to the structures maintained by colonialism—in other words, it is business as usual. (Corry 1994, 37)

Corry rejects Rainforest Harvest arguments that the only (or at any rate, the best) way to save the forest and its peoples is to make it profitable on the grounds that they play directly into the hands of development-oriented governments and international financial institutions that dismiss subsistence producers as of no social value, and justify the invasion and take over of their lands in the name of economic productivity. He insists that the rights of forest peoples to their lands and ways of life should be recognized on grounds of historic rights of prior occupancy rather than making them dependent on economic productivity. He points out that the more economically productive the natives make their traditional areas, the greater will be the incentive for others to take them over, as the long history of Indigenous societies in the Americas attests.

I would add that the fact that Indians or rural rubber-tappers are managing to make a profit from forest production is unlikely to appear a significant argument to private urban corporations, government development agencies, or impoverished settlers from other regions who have no way of sharing in such profits or participating in the productive activities in question. These, however, are the groups that hold political, economic and demographic power, and that have invariably been the sources of the invasion and destruction of forested areas.

Corry further argues that income from the sustainable production of forest products can never approach the far greater (if non-sustainable) profits to be had from logging and mining, and therefore is not a realistic alternative to them as a source of income for most communities of forest people. Ecologically sustainable production will therefore tend to be regarded as a supplement rather than a substitute to ecologically destructive forms of extraction, and thus cannot be regarded as an incentive for conserving the ecosystem.

Reinforcing this point is the fact that the proportions of total product actually sourced from forest peoples in commodities marketed by Rain Forest Harvest schemes, such as those of Cultural Survival, Ben and Jerry’s, and The Body Shop, have in some instances been minuscule; the great bulk being made up of conventionally sourced items produced in the usual socially and environmentally exploitative ways. The implicit or explicit claims of...
such schemes to constitute economically significant incentives to save the rainforest, in other words, are mere hype:

There is no evidence that it helps conserve rainforests, it does not empower rainforest peoples, and, worse, it subverts the case for tribal peoples’ land rights. It arises from the marketing ploys of profit-making companies, not from the real needs of rainforest communities or an intelligent consideration of their rights or environmental concerns. (Corry 1994, 37)

Clay answers that, in the case of the projects initiated by Cultural Survival, it was sometimes necessary to draw on conventional sources to enter the market in sufficient volume to gain the necessary foothold, but that the aim remains to convert, in the long run, to supply by “forest peoples.” Be this as it may, the partial adaptation of the “Rainforest Harvest” approach by private corporations, as exemplified by The Body Shop, substantiates Corry’s criticisms (and those of several others as well).

THE BODY SHOP PROJECTS AMONG THE KAYAPO: THE “RAINFOREST HARVEST” “PARA INGLES VER”

In 1989, Anita Roddick, the director of The Body Shop, attended the well publicized Kayapo-led rally of Indigenous Amazonian nations at Altamira to protest a massive hydroelectric dam scheme on the Xingu river that the Brazilian government was planning to build with financing from the World Bank. Eager to identify her company with the prestige of the now world-famous Kayapo and their charismatic leader, Payakan, she offered him an airplane and a project for pressing Brazil nut oil in his community, A’ukre. Payakan accepted, and the press for extracting the oil, to be used in the company’s hair conditioner, was duly installed in 1990. Today The Body Shop has added a second Brazil nut oil press in another community, Pukanu, and started a second project for the manufacture of bead jewelry by Kayapo women in four villages. The Body Shop sells the items in their outlets. The Kayapo thus became the first Indians in Amazonia to participate in the new wave of “green capitalist” enterprises based on environmentally sustainable production.

The Body Shop pays a good wage by regional standards for the Kayapo Indian labor employed in producing Brazil nut oil and bead jewelry. By far the most important value the Kayapo contribute to The Body Shop, however, is not the oil and bead bracelets they produce, but their photographic images, and reportage about the projects in the media, which serve as free advertising for the company and for which it pays not a penny to the Kayapo.
pany and for which it pays not a penny to the Kayapo. The Body Shop boasts that it does not pay for advertising; it relies solely on such images and accounts of its projects in its shops and coverage in the media to build the “politically correct” image that is the basis of its consumer appeal. But is this not a covert form of “aid not trade” by the Kayapo to The Body Shop? To call this “fair trade,” as The Body Shop does, is to make a mockery of the term.

The Body Shop is the sole buyer of the Kayapo products, and thus is able to set both the price and the amount of product it will buy. The Kayapo have pressed it to allow them to expand production and install oil presses in other villages, but The Body Shop has refused, saying that it cannot use any more of the product (even though Kayapo-extracted Brazil nut oil comprises less than one percent of the volume of its “Brazil Nut Hair Conditioner”). The Body Shop’s interest in the projects is clearly their value as advertising, and it has no interest in expanding them beyond the token levels of production required for this purpose. It is not interested in allowing the Kayapo to engage in “trade” in the ordinary economic sense of free and competitive access to markets, and runs the projects in such a way as to prevent them from doing so. The projects thus take on the character of piecework wage labor rather than “trade” of products on the market; they are strictly regulated operations based on total control of production volume and demand by one partner. All of this, of course, is inconsistent with the slogan of “Trade Not Aid,” of which The Body Shop holds up their Kayapo projects as a prime example. It is also inconsistent with what they have led the Kayapo to believe, namely that the projects are normal economic production operations aimed at making a profit through the marketing of the product.

The “Trade Not Aid” slogan is deceptive in yet another sense in so far as it suggests that “trade” projects like The Body Shop’s represent a viable alternative to aid for the Indians from governmental and non-governmental sources. This is patently not so. The real implications of the “Trade Not Aid” slogan in this respect have been made brutally clear by the Brazilian government, which has cut off its appropriations for aid to Indigenous peoples. Faced with the suspension of medical, educational and other services, Indigenous peoples like the Kayapo have been driven to rely on the only forms of “trade” available that can provide anywhere close to the amounts they need to pay for the services they so desperately need: mining and logging, the most destructive forms of extractive production. The small Body Shop projects, maintained essentially for their value as advertising rather than as serious productive enterprises, do not begin to meet the need for communal income in the absence of
government and private aid, and cannot become viable alternatives to the much larger sums easily available from the loggers and miners. The two Kayapo communities with the Brazil nut oil projects have both granted concessions to loggers, and Pukanu has granted one to gold miners as well.

So “Aid” turns out to be essential if the “Trade Not Aid” projects of firms like The Body Shop are not to become mere smoke screens concealing the economic desperation that drives such communities to open themselves to the most environmentally, physically and culturally damaging forms of “Trade.” It is thus not only deceptive of The Body Shop to tell its customers that buying Brazil Nut Hair Conditioner “give[s the Kayapo] an income to help protect the Amazon rainforest,” but also politically retrograde for it to imply that its “trade” renders redundant non-commercial forms of “Aid” such as government support for basic services and political and legal struggles for land and human rights.

The Body Shop projects have certainly not led the Kayapo to give up their dealings with loggers and miners (Pukanu did expel its miners, for reasons unrelated to The Body Shop projects, last year, but A’ukre opened negotiations with a group of miners during the past year, inviting them to explore in a corner of their territory — fortunately they did not find any gold). The Body Shop’s refusal to expand the volume of production in its existing projects or to initiate any further projects in other Kayapo communities means that for the Kayapo as a whole, and even for those communities with projects, the amount of income the projects provide is far short of meeting what the Kayapo now feel to be their needs. Furthermore, The Body Shop’s maintenance of tight administrative control, and its continuing role as sole supplier of capital equipment and sole customer, able to fix unilaterally the levels of production and demand, means that there has been little “empowerment” of the Kayapo as “equal trading partners” as Body Shop publicity has claimed. Fortunately, the Kayapo have already obtained government recognition of their control of their land, so they are not a case to which Corry’s criticism applies. In this case, the Rainforest Harvest approach has not lead to a substitution of market production as the object of Indigenous support activism in place of the struggle for legal land rights, but only because that objective had been realized earlier.
THE KAYAPO PERSPECTIVE

Such, at any rate, are the criticisms that can be made of The Body Shop’s operations among the Kayapo from the standpoint of an anthropological observer. But what of the views of the Kayapo themselves? Here we immediately find that, in apparent contradiction to the critical views advanced on their behalf, the Kayapo are enthusiastically supportive of The Body Shop. Kayapo of the communities with Body Shop projects want them to continue, and there is no shortage of willing workers for both Brazil nut oil and beadwork production. Other Kayapo communities would like The Body Shop to install similar projects, and have been disappointed with Gordon Roddick’s announcement that The Body Shop will not expand the number of its Brazil nut oil and beadwork projects. Kayapo opinion, in short, seems fairly unanimous that The Body Shop projects are good for them.

The question must be asked, however, whether Kayapo enthusiasm and willingness to work implies fully informed consent to, and agreement with, the terms of The Body Shop’s own definition and representation of its operations. The answer to this question is clearly “No.” The Kayapo start from a recognition of their fundamental dependency on the Western economic system — Brazilian, British, or Transnational — for a whole series of commodities they have come to need but cannot make themselves. They know the only way to get these commodities is either to persuade the state or other parties to give them as “presents,” in the style of the old Indian Protection Service or visiting film crews, or to somehow get the money to buy them, either from timber and mineral concessions or, as a last resort, by working for wages. All of these, they are aware, are varieties of political-economic dependency; they do not expect them to be “empowering” (they have done quite well empowering themselves through organized political action and diplomacy, notably in obtaining official demarcation of their reserves, but that is another story). They chafe at the unaccustomed degree of subservience and regimentation exacted by the firm and efficient management of The Body Shop Brazilian project manager, but they are willing to put up with it for the sake of the income the work brings in.

The Kayapo do not look upon The Body Shop projects as straightforward “trade” relations in which they act as “equal trading partners.” They see them rather as aid mixed with trade. That The Body Shop has gone to the apparent inconvenience of coming to them from halfway around the world, bringing them elaborate oil pressing machines and great stocks of beads to be made into bracelets, all to allow them the opportunity to earn money through individual work, appears to [the Kayapo] as the gesture of a benevolent patron.

That The Body Shop has gone to the apparent inconvenience of coming to them from halfway around the world, bringing them elaborate oil pressing machines and great stocks of beads to be made into bracelets, all to allow them the opportunity to earn money through individual work, appears to [the Kayapo] as the gesture of a benevolent patron.
They know that it is not being done simply for pecuniary gain from the trade in the commodities they produce. Precisely why the benevolent patron has gone to such lengths to aid them, however, remains obscure. Not a single Kayapo, I believe, has yet fathomed this ultimate mystery, and The Body Shop has not thought fit to explain.

Meanwhile, they prize the degree of individual empowerment the income from the work makes possible. Women, especially, have benefited from the chance to make money of their own, independently of their men, through the manufacture of the bead bracelets. Few of them would otherwise have this chance. For ordinary men (not chiefs or leaders) the Brazil nut oil work brings in more than they could acquire without going off to work in a mine or for a logging crew. For Kayapo men and women alike, The Body Shop therefore represents a valued option they want to keep open.

This, however, is not to say that they have any idea of closing off any of their other options for monetary income, political concessions, territorial expansion, medical or other basic services, or other forms of aid, simply because The Body Shop option is available. They have learned to say the right words to The Body Shop, thanking them for making available an alternative to reliance on logging concessions (which might well come in handy at some future time when the timber is exhausted), while continuing to sign logging contracts with the Redenção sawmills. Payakan, the A’ukre leader who for some time served as The Body Shop’s chief Kayapo symbol, was particularly adroit at keeping all the balls in the air in this way, producing noble ecological rhetoric for The Body Shop and other eco-patrons while secretly negotiating mahogany concessions and having other Kayapo sign the papers. The same policy is pursued by Pukatire, the leader of Pukanu, the other village where The Body Shop maintains a Brazil nut oil press.

It would be missing the point to see these canny leaders as traitors to the supposed ecological principles of their own cultures or “corrupt” sellouts of their people; the Kayapo, despite the large amounts of nonsense to this effect produced by romantic journalists and some anthropologists, were never ecologists in the contemporary Western sense, and they never saw their title to their own land or their relations with organizations like The Body Shop as restricting their freedom to use their resources for their own economic purposes. Leaders like Payakan and Pukatire are simply following the policy that most Kayapo see as their best option, namely that of exploiting all opportunities for strengthening themselves economically, politically, and territorially through all available forms of trade, aid and political action.
The Kayapo, in sum, are pragmatic eclectics, who are no more concerned with the ideological rhetoric of Western ecoliberals than were their 16th century ancestors with the mystery of the Holy Trinity. Their acceptance of The Body Shop projects does not imply their agreement with the policy of Trade Not Aid, or with The Body Shop’s representations of the linkage between its trade projects and the preservation of the ecosystem, or with The Body Shop’s representations of their own empowerment or equality in the relations of production and trade. Nor does it imply that the Kayapo understand The Body Shop projects for what they really are, namely symbolic operations undertaken primarily for public relations purposes, whose value as “trade” to The Body Shop is virtually incidental. This means that the Kayapo do not understand how they are exploited by these projects, through the unpaid extraction and use of their representations in Body Shop publicity. Although The Body Shop, in an attempt to forestall criticism on this fundamental point, has obtained the consent of Kayapo leaders to the use of their words and images, the Kayapo have no conception of the value of this publicity to The Body Shop. They cannot be said to have agreed to what they do not understand.

Meanwhile, the pragmatic Kayapo approach to The Body Shop, which essentially comes down to making the best of a not very good deal for the lack of anything better, may serve as a model for a practical resolution of the debate between proponents of the “Rain Forest Harvest” and their critics. If peasant or Indigenous communities like the Kayapo want projects such as The Body Shop’s for the limited benefits they bring, provided they do not entail the closing off of other options either for trade or aid, and ideally would comprise only an auxiliary part of such a mixed portfolio, then critics of these projects should also support their continuation in the communities in question, while continuing to call for the correction of their exploitative and dependency-inducing aspects and criticizing their self-serving misrepresentations. This essentially means transforming The Body Shop projects and other “Rain Forest Harvest” efforts into genuine “fair trade” projects such as those that have been developed, with far less fanfare, by organizations like Oxfam. These are projects run by local communities aimed wholly at generating a return to the producers from their work, without the ulterior purpose of promoting the interests of an external profit-making corporation. Opened up to competition from alternative customers, including local markets where practicable, stripped of their pretensions as substitutes, rather than supplements, for governmental aid, legal rights and political struggle, and given the chance to expand their production to economically significant levels rather than merely functioning as...
tokens to lend credibility to non-Indigenous businesses or philanthropic organizations, such projects can play a constructive role, and to that extent should be encouraged. In the specific case of The Body Shop, however, the essentially symbolic function of the so-called “trade” projects as unpaid advertising holds out little hope for such development.

QUESTION & ANSWER SESSION

Q: Although some of Stephen Corry’s criticisms of the Rainforest Harvest approach certainly apply to The Body Shop case, I think he exaggerates when he charges that this approach supplants the need to defend Indigenous land rights. Rather, Jason Clay and others argue that simple defense of land rights is not enough, that economic forces are also needed.

TT: Well, I certainly agree, but I am not sure that Rainforest Harvest activities are the kinds best calculated to serve that political function. My point is not to reject the usefulness of Rainforest Harvest projects, or even The Body Shop project, though I am pretty skeptical about it. I think that we should listen to the Indigenous people and realize that in the current situation in Amazonia, Indigenous and forest dwelling people need all the help that they can get, and a little pragmatism is perhaps appropriate.

Q: What would your reaction be if The Body Shop were to start participating in biological prospecting — trying to bring Kayapo cultural knowledge into the commercial sector?

TT: Well, it’s not an academic question, because The Body Shop is already doing this. They’ve initiated a project, hired a chemist, and they have their Brazil nut oil project foreman working half-time going out into the forest with the Kayapo and collecting promising medicinals. I think that The Body Shop is up to a scam, much like similar scams elsewhere.

As you all know, there is a global rush on the part of major pharmaceutical companies (Ciba-Geigy, Parke-Davis, Wellcome, etc) to identify marketable natural molecules. It takes vast resources to test and develop such products. The Body Shop does not have these resources, but what it does have — or thinks it has — is a certain amount of access to Indigenous environmental knowledge. It hopes, I think, to identify potentially marketable substances that it can submit to preliminary testing to the point where there is some basis for a claim, and then go to big companies and interest them in taking up this project — it can be a middleman. It has already told the Kayapo that it has a really hot project for them.
whereby The Body Shop will help them to enter into contracts for other product. What products? Well, they’ve been very cagey thus far, but I think they are positioning themselves to be able to cream off some sort of middleman position in this rush for molecular resources. The danger is that the Kayapo and other Indigenous people who become involved in this process are going to get a dismissive payoff and not be able to control the terms of their agreements with the ultimate developers and marketers.

Q: Are you taking part in the debate with Darrell Posey and Hall about the nature of Indigenous knowledge and how it is used?

TT: Well, having worked for thirty years among the Kayapo, I will start by saying that Darrell Posey is a fraud; that he has made up the data that he claims to have about this fantastic system of forest management that somehow all other anthropologists in the Amazon missed. They missed it because it doesn’t exist — Darrell Posey has made it up. His exercises in ethnobotanical and ethnoentomological science are science fiction.

REFERENCE

TERENCE TURNER
Dr. Turner is Professor of Anthropology at the University of Chicago. He received his PhD from Harvard in 1966, for a thesis based on research among the Kayapo of Central Brazil. He has continued to work with the Kayapo, producing numerous writings on their social, cultural, and political reality. For the last five years he has been directing the Kayapo Video Project, in which the Kayapo have been shooting and editing their own videos about their own culture and relations with the Brazilians.

Dr. Turner served as head of the Special Commission of the American Anthropological Association (AAA) to Investigate the Situation of the Brazilian Yanomami in 1991, and has remained involved in Yanomami affairs in an advocacy capacity. He has been a member of the AAA commission for Human Rights since its establishment in 1992. He has collaborated extensively with several Indigenous advocacy organizations such as the Instituto Socioambiental, the Centro de Trabalho Indigenista of Brazil, and Survival International of the UK.
Terence Turner Working Group

There has been a lot of hype concerning rainforest product marketing strategies, such as those set up by Ben and Jerry’s and The Body Shop, whose products have been sold under the guise of saving the rainforest. Under the current system, this strategy is economically unsound as these products appear to bring in a very small amount of money as compared to timber harvesting.

Further sociological and cultural difficulties are encountered in attempting to create a capitalist system for Indigenous people who are used to communal living. This has proven to be a major limitation not foreseen by First World firms engaged in Rainforest Harvest-type activities.

Dr. Turner suggests that a working solution will be reached only by trial and error, with a great deal of input necessary from the Indigenous groups. He stressed the importance of letting the groups decide for themselves, and identified the need to give them the authority to do so.

Ted Macdonald: The legacy of the hype is that it produces, in short, no economic returns in the sense that the total profits were not paying for the project. A second problem was the lack of information that was available at the time. A number of firms got on this bandwagon and signed agreements promising very high returns from the environmental premium, and simply never paid the minimal amounts that were due. A lot of us, and I fault myself as well, just didn’t know what was going on — that it was not the panacea that it had appeared to be.

Terence Turner: Well, I’d like to note that on the Cultural Survival Enterprises side, the effects of the Rainforest Harvest strategy were counterproductive due to a lack of communication between the First World headquarters of the operation and what was actually going on at the local level. The difficulty in articulating these green capitalist projects at the local level is almost unimaginable. It is not only a question, as Sharon Flynn was suggesting, of getting a capitalist project going at the local level. There are so many other social and economic problems that are immediately engendered in these communities that the social and economic overhead gets to be much larger than expected and can really interfere with the production process. In this case, it seems that people really didn’t know what they were doing. There was a lot of rhetoric, but in reality, it was not a capitalist business — it was hype.

TM: The simplistic Rainforest Harvest strategy played into the senti-
ments of “environmental” people. It promotes the idea that, for example, eating Rainforest Crunch helps save the rainforest, when in reality it may actually hurt the rainforest. This kind of marketing ignores local social and economic complexities, and fantasy and reality become blurred.

**George Appell:** No one ever thought about the social implications and problems potentially associated with the Rainforest Harvest strategy, with bringing a capitalist project into a non-capitalist community. Given all of the sociologists involved, I find this particularly surprising.

**TT:** Yes, that’s a key point, one that I wasn’t able to get to in my talk. I have a much longer manuscript, entitled *The Invasion of the Body Shop*, to be published soon. It includes an ethnographic record of the sorts of problems George mentioned as they developed in A’ukre and Pukanu, these two Kayapo communities with the oil nut projects.

I have a number of reservations about green capitalism projects that stem mostly from my failure to believe in capitalism. I suppose this disqualifies me by Ms. Flynn’s criteria. One reason is precisely the point George raised. When you install a capitalist project in a non-capitalist community, you are attempting a total social and cultural revolution. If you try to install an isolated or encapsulated project which does not disturb the community, you will find this is impossible because you need to find local entrepreneurs, of which there are many, to quote Ms. Flynn. Certainly you can find people who will take money to be the go-between between the benevolent gringos and the producers. This results in social differentiations which cause community tensions as some members join the capitalist project and change roles. This is exactly what happened in the Kayapo communities — the community actually split up temporarily, and a deep schism remains. A lot of this is dreadfully dangerous, so to really get involved, you need to consider more than just how to balance books and how to trade on favorable terms.

**Mac Chapin:** Part of the problem is the communal nature of the community. Among the Kuna of Panama, for example, they are used to doing things as a group, in some predetermined order, with a structure. When you bring in capitalism, it promotes the individual and the work of the individual. As far as I know, no one has figured out an effective way to work with collectives in a capitalist system.

**TT:** Yes, there are not very many good models of collective capitalism — capitalism is uncollective. It’s not just a question of individuals versus collectivism. Commodification is itself another
fundamental distortion, as shown by The Body Shop’s rhetoric. They claim they are trying to commodify Indigenous knowledge without changing the native culture. Well, commodifying the native culture is a fundamental change of the culture because one of the things that commodities imply is private property. If you suddenly make a commodity of cultural knowledge, a supremely shared thing, you attempt to identify it as the product of some person or community. Whatever identification you make will be a fundamental distortion which will introduce serious social and cultural distortions, proportionate to the remuneration for the commodity in question.

Stephen Gallagher, Southern Connecticut State University: Given these views, do you believe that the only way Indigenous cultures will survive is by remaining isolated? Since interactions with the capitalist sector have always had the effect of eliminating common property and collective institutions, and since these groups function in a resource base they control inadequately, can they survive only by withdrawing into the jungle and being self-sufficient?

TT: Nobody in the world can do that anymore. However, it is possible for Indigenous groups, communities, or leagues of Indigenous people to gain control over land and resources and thereby join the world community while maintaining their own culture relatively intact. National laws vary, but in Brazil, Indigenous resources are constitutionally and legally protected, although this does not mean they are in fact protected. In December, the leaders of the 15 Kayapo communities met with the federal prosecutor and the chief of the federal police, and gave unanimous Kayapo support for an operation by federal police to expel all miners and loggers in all Kayapo areas — an area about the size of Scotland. This had been blocked by the Kayapo earlier, because they had had agreements with the loggers and miners, but, in the meantime, there was something of a social revolution due to health impacts of mercury and malaria brought in by the operations. They are using their legal rights and enlisting the federal government in their defense. So it is possible for a politically together group to assert control over their resources. Now they’re in the initial stages of trying to begin sustainable forestry in the area.

Jim Murphy, Tufts University: Is this the beginning of the end of their cultural independence as they begin to integrate with mainstream Brazilian society?

TT: No. There is increasing integration, but it is important to distinguish between isolation and culture. They have achieved a lot, including, in a space of 30 years, going from first contact to
being prominent members of regional society on their own terms — something that no other group has been able to do. Politically, they are still acting as autonomous communities within their own land, and though they have many interactions with Brazilian society, they are not contiguous with it. They still act through their own communal institutions, and Indigenous positions of leadership remain. They are not losing culture, they are changing it in a way that affords them a viable expression of what’s worth living for in their society. It’s a cultural change, but it’s still a viable, independent culture.

MC: I think the Kuna in Panama are very similar — they’re good at engaging the outside culture while remaining distinct. Given all of this, what role can rainforest products play in the end?

TT: I think they can now play a more important role in the future. I think of The Body Shop project as a pilot project which shows you can get Indigenous communities to produce non-timber forest products in an organized and viable way. There exists a potential to generate income from expansion to other products and greater volumes. It may be possible that forest product exploitation could generate enough basic income for the Kayapo to free them from dependence on government and NGO aid for medicine and other basics. Despite everything I have said today, I still think that this can be a way to go for Indigenous communities, within limits. If you can avoid the mistakes and the hype of outfits like The Body Shop and can work with relatively disinterested NGOs like CI, perhaps these self-led harvesting projects can be a supplement to the community.

Wendy Gerlitz, Yale F&ES: What is the role of an organization that initiates a project like this when the culture begins to change in a way that is no longer conducive to the conservation goal of the organization? For example, when the local people seize control of the land, kick out the loggers, and then turn around and use the land themselves for the same unsustainable logging.

TT: No organization ought to consider itself as the exclusive alternative to these economic activities. NGOs are coming in with sustainable production projects, but these projects have never amounted to more than a small percentage of the total productivity of the community. The project leaders, whether they be NGOs or The Body Shop, or whoever, are not in a position to say “You are doing our project therefore you no longer need the other projects.” They can only offer an alternative. This will be a pluralist process with different kinds of approaches attempted, no one will get ascendancy, but it leaves lots of room for an approach which emphasizes demonstration projects.
Building Markets for Non-Timber Forest Products: Challenges and a Few Lessons Learned

Sharon Flynn
Conservation International

ABSTRACT
Properly applied, non timber forest product (NTFP) development can be a way to advance conservation goals by providing an economic return to local people from natural areas. NTFP development is fraught with pitfalls, many of which arise from a lack of understanding of market dynamics and business practices. NTFP projects are successful only when they address risk taking and risk sharing, select products appropriately, and manage enterprises effectively. These measures are not easy, and require business expertise. Furthermore, long-term success requires that local partners have the opportunity to access the information and skills necessary to make effective business decisions.

The first thing I would like to say is that I work for Conservation International (CI) and I am not a biologist. I work within a department at CI called the Conservation Enterprise Department. What we do is work very closely with local communities, with our country programs and with other NGO partners to target Non-Timber Forest Products (NTFPs) that could be harvested, processed, and marketed. We help local communities and NGO partners to develop the enterprises needed to establish the supplies of these products, and at the same time travel all the way down to the other end of the chain — to work with the marketplace and figure out how to work with firms in setting up strategies for distribution and supply so as to get what’s in the forest out into the marketplace and out to the consumer.

So, when I thought about what type of audience would be here, I imagined there would be communities — like we have from Mexico and Brazil — who are actually working with NTFPs, representatives from NGOs involved in NTFP projects, and students who are interested in working in this area. What I wanted to do was share with all of you some of the challenges and lessons that we have learned at CI by actually doing forest product development.

Economics drives rainforest destruction. Local people clear forests to plant crops, raise cattle, and feed their children, and governments grant logging concessions to generate foreign exchange revenues and pay off debt. Over the past decade, conservation groups and local communities looking for innovative ways to counteract these pressures have fought back with market based strategies. One of these strategies is the development of enterprises based on the extraction of sustainably harvested Non-Timber Forest Products. Conservation International helped to pioneer the use of NTFPs in conservation with the launching of the Tagua Initiative in 1990.
Since then CI has expanded its NTFP work to include 3 major industries, 11 ecosystems, and 15 to 20 different products.

This paper discusses issues relevant to the enterprise aspect of NTFP development and presents some of the broad challenges CI has identified and a few of the lessons we have learned. This paper does not address the numerous and critically important ecological and socio-economic challenges of NTFPs. All of the decisions made about demand and supply-side strategies should be taken within the context of ecosystem conservation goals. Enterprise decisions must support the overall ecological and social integrity of the project and promote conservation, but I’m focusing on enterprise issues because that’s what I know well, and because many NGOs neglect to look at this aspect when they are considering NTFPs.

CI believes that simply harvesting and processing NTFPs will not save the rainforest. Rather, NTFPs can play a role as important tools for conservation. NTFPs help strengthen integrated conservation strategies that include education initiatives, resource management, communications, and land tenure and policy work. NTFPs can help provide alternatives to ecologically destructive activities and demonstrate the viability of sustainable forest management. In many communities and governments, it is easier to talk about jobs and income rather than conservation, and NTFPs can serve an important demonstrative role to both local people and national policy planners.

A FEW OF THE CHALLENGES

Markets are not perfect and therefore NTFPs are not easy. If markets were perfect then forests would be valued differently and NTFPs might be easier. In most cases, there is a reason or reasons why the aggressive marketplace has not catalyzed the harvest and processing of NTFPs. Producers of NTFPs face numerous market failures and barriers-to-entry in commercializing their products. This an important point for NGOs and communities with visions of easy market access and simply solved inefficiencies.

Producers of NTFPs generally encounter two types of challenges. The first set are classic market failures — lack of capital and information. Producers may have immediate access to products in which the market has great interest, but firms and producers usually do not know about each other and face huge investment costs in bridging the gap. In the development of NTFPs, NGOs and governments have helped to resolve these gaps by channeling information between firms and producers and by offering access to cheap sources of capital. This is the primary role of CI in its NTFP work.

The second set of challenges faced by producers can be broadly termed as socio-political failures. These challenges stem in part from
the marginalization of forest producer groups by governments. Solving information and capital gaps may be relatively straightforward, but solutions are useless unless the capacity is there to actually get the leaf off the tree, into a processing system, onto a boat or a truck or a mule, and into the marketplace. Broadly defined (and there certainly may be more), these socio-political challenges are:

- lack of resource ownership/land tenure rights
- barriers to collective action and organization
- lack of educational options
- lack of transport infrastructure

Identifying and understanding these challenges is key in developing NTFP strategies with the highest possible chance of success. The “lessons” outlined below are general rules that will help meet these challenges.

LESSONS LEARNED

Creating strong markets for NTFPs involves work along the entire length of the value chain — from the forest to the end user. Much like any other business, this work requires a series of choices and decisions along with a large dose of uncertainty. However, unlike most businesses, the goals of developing an NTFP are usually more complex than making a profit. Building financially healthy enterprises in the middle of the forest, without running water or electricity, that are based on ecological sustainability, community empowerment, and are linked to conservation, is a fairly daunting task.

CI’s “lessons learned” are broadly defined guidelines that help minimize uncertainty and help make decision-making easier. Decisions are still tough and uncertainty will never be eliminated, but understanding the boundaries of what you know and don’t know certainly helps.

GENERAL LESSONS

Risk

Sharing Risk

An important role CI plays in developing NTFPs is to absorb risk. We absorb the risk of producers who have something to sell but no market access, and we absorb the risk of firms who want new products but don’t know where they are or how to get them.

Sharing risk among the three players — producers, firms, and CI
— is key in insuring a product’s longevity. Risk should be shared according to each player’s capacity to absorb it.

Of the three, rainforest producer groups face the greatest risk. Economic options are scarce and the cost of failure in a subsistence-level lifestyle is high. Yet, at the same time, most producers participate in some form of marketplace every day and most understand the buy and sell mechanism. The goal is to garner the greatest reward with the least risk. CI helps minimize the costs by helping to link producers with market partners at a flexible pace that creates gradual acceptance and understanding of risk.

On the demand side, while markets in general are fairly elastic, firms are not. Switching sourcing of Brazil nuts from a stable, well known New York broker to an unknown supplier in the jungles of Peru with a crackly phone line is a risky venture for a business. While firms can usually absorb more risk than producers, they face their own failure costs. By serving as a link between the firms and the producers, CI helps design production and sourcing strategies that meet both sides’ needs and that are dynamic over the long-term.

Taking Risks

Think big, but take small steps to get there. Since bringing NTFPs to market often means doing what no one else has done, be creative and idealistic in the final goal. Getting a vegetal leather product out from the forests of Brazil and into a Déjà Shoe is a pretty amazing thing. We need to think big; think about how to make these great connections. But, be smart, analytical, and wise in how you decide to get to that goal.

Don’t Forget This is Capitalism

Doing NTFPs is capitalism, pure and simple, and if you don’t like capitalism then you probably shouldn’t be doing NTFPs. While most rainforest producers understand the buy and sell mechanism, many NGO staff do not. Philosophical or ideological problems or concerns with the whole issue of capitalism can often serve to derail a project. Building NTFPs is a business — the pursuit of profit and the need to pay attention to the bottom line. It means competition, pricing, loans, banks, credit, successes, failures, and lots of hard work.

Asking for a buck is a lot different than trying to make a buck. This is something that can be quite alien to NGOs. You can cultivate a donor for two years, but you’re going to get your million dollars on a single day, and there’s not much control about what you do with that million dollars. Meanwhile, nine out of ten new businesses
in the US fail, and it takes businesses in the US three to five years to even make a profit. Doing NTFPs is hard; it takes a lot of perseverance and it takes a long-term perspective.

LESSONS LEARNED ABOUT PRODUCTS AND ENTERPRISE DEVELOPMENT

Product Selection

Overall, products should be selected that make the best economic sense for the producers over the long-term. CI does not encourage the selection of products based on the whim of a particular client since this makes the producers totally dependent on a single buyer, as Terry Turner pointed out in the Kayapo case. Markets change, prices fluctuate, and clients lose interest.

Look for Real Value

Don’t assume that just because products are ecologically interesting and might have a potential use that there is real value. To have real value, products must have a market and it must be possible to commercialize them. There is little value if you can’t get the leaf off the plant, and the wax off the leaf, all at a price that makes sense, and into a form that people want to buy.

Start with Existing Products and Look for New Ones

Despite the words of caution on real value, there are many products not yet commercialized that are of great interest to the marketplace. There are four areas in which greater value can be brought to rainforest producers:

• Improve the value chain for existing products

  The harvest, production, and marketing of most products is not always done efficiently. Interventions can be made into existing processes to add efficiency, reduce costs, and bring more benefits to the producer.

  For example, allspice in Guatemala is a major industry, although Guatemala ranks second behind Jamaica in the Global market. Jamaican allspice commands a higher price, because it is sun dried, whereas it is dried over a fire in Guatemala. When companies extract the oil to use in ketchup (the largest user of allspice), it tastes smoky. So one of the interventions that CI has been discussing — one that can be an easy thing to help bring a greater value to the producer — is developing portable solar driers that people can actually take out into the forest with them when they are collecting allspice. These types of interventions can be put in place easily, do not require any great marketing strategies, and entail the least risk for the producers.
• Look for by-products of existing processes
  Products and product processing already in place may yield valuable by-products. For instance, sugar cane processing (although not an NTFP, but a good example) has been found to yield cheap quantities of alpha-hydroxy acids (AHAs). AHAs are all the rage now in the personal care industry and are being used heavily by everyone in skin care products.

  Another example is the tagua waste generated by button disk manufacturing. This waste product has great potential as an abrasive for industrial cleaning, and we are beginning to develop this as a way to increase the benefit to the producers.

• Look for competitive advantages
  NTFPs need to compete in the marketplace based on functionality, price, and quality. Products should be selected based on their overall competitive advantage in the market.

• Don’t try to swallow too much of the value chain at once
  When designing strategies to link producers with the market, a realistic assessment should be made of the market’s needs, the producer’s existing production capacity, and the economic and ecological time pressures. With most products, as one travels along the value chain, processing, marketing, and distribution strategies become more complex. Trying to transfer too many of those complexities to the producer level at too rapid a rate will only increase the chances for failure.

  When one starts working with NTFPs, one needs to constantly think about how to get more value added processes back, but if you do too much of that at once, the whole thing will just crash and burn. This is an interesting challenge that I think the vegetal leather producers are facing now — they’re doing the raw materials, so the next step is to ask how they can start doing more of the processing. There is a whole set of risks inherent in this. For example, vegetal leather could be used to make handbags. In the handbag industry, however, styles change every six months, so, if you’re going to choose that, you need someone out there in the marketplace who lives and breathes the fashion industry, and who can constantly funnel you ideas on colors and styles as they change.

  CI has found that value, in some cases, will travel toward the producer anyway. For example, the Tagua Initiative in Ecuador began in 1990 on the community level with simple harvesting of the nut. Recently, due to pressure and interest from Ecuadorian primary manufacturers, the community is looking into taking on some of the...
initial processing done by those primary manufacturers. CI is helping the community to start thinking about setting up drying and slicing operations within the community itself.

Write a Business Plan

The simple exercise of compiling a business plan will require a complete analysis of both the supply and demand for a product. Specifically, it will require analysis of a sometimes overlooked component — transportation. With NTFPs, transportation is a major issue as getting a product to market from remote areas will add high costs to the end price. These costs must be taken into account when determining the overall feasibility of the product.

Improve Technologies

NTFP producers working without conventional sources of energy need to be creative in gaining efficiencies and reducing costs in their production systems. Any NTFP will require investment in innovative harvesting and production technologies to increase product competitiveness and bring greater benefits to the producer. Someone needs to be there who’s a tinkerer — someone who’s constantly thinking of new ways to put things together.

Target Community Entrepreneurs and Focus on Skills Development

The key to any successful NTFP is community ownership of the enterprise. Rainforest communities are full of entrepreneurs who have the energy and insight to pursue good product opportunities. Simultaneous to production and marketing, training and educational initiatives should be offered that will hone the managerial and business skills of producers and insure a technical base for long-term, stable management of the enterprise.

Most businesses in the US fail because of management problems, not because of market problems. NTFP producers are often saddled not only with this problem, but also with marginalization in the sense of educational options.

Hire Good Managers and Support Them

While most rainforest producer groups understand the basics of product development and marketing, many products require a more complex set of skills than are initially available within producer communities. A good manager is key in starting up an NTFP enterprise and in coordinating the skill development activities. Good managers are strategic thinkers, good business people, good community workers, and want to live in the forest. These people are very
difficult to find — believe me, I’ve spent a year and a half trying to find at least one.

LESSONS LEARNED ABOUT THE MARKET:

Understand How Real Markets Work

Understanding how markets work is critical to operating successfully within them. Not fake markets, not markets that you want to create, not markets that you think you can create, but how real markets work. This is the only way that NGOs or anyone else working in the area will be able to find the strategy that makes the best sense for the producer.

The first step at CI for any NTFP is to do a comprehensive analytical overview of the market and the product. This is the basic information that will be used to build a marketing strategy. Size, trends, major players, distribution strategies, and sourcing habits should all be clearly identified.

Build Strategic Partnerships

Working with firms that know, understand, and live and breathe the market is the best way to get a product into the right channels and into the hands of end users. Markets are complex and working with firms who know what they are doing will increase the chances of success. When developing a strategy for a new product or range of products, CI searches for marketing partnerships that will bring the greatest market access and institutionalize products into the mainstream. A good example of a strategic partnership is what Déjà Shoe is doing with vegetal leather.

Stay in Tune with the Market

Strategic partnerships also have the added benefit of keeping producers informed about the market. However, firms have their own agendas and may choose to communicate information selectively. Mechanisms should be established that will funnel market information to producer groups on changing prices, trends, and other news.

Diversify

Diversification of markets will minimize risk by reducing dependence on single clients or products. It can take place both horizontally and vertically.

Diversification can take place horizontally within a market by
increasing the size of the client base or expanding uses for the raw materials. When building diversified markets horizontally, serious consideration should be paid to the trade-off between long-term market access and selling immediately to many outlets. For example, in the personal care market, CI chose to work with a single supplier in a given segment in order to get the biggest access to a large number of end manufacturers. In addition, the supplier brings expertise in safety testing, chemical analysis, sales, and marketing. The other option would have been to facilitate sales directly to end manufacturers. The decision to work with a single supplier was made after thorough analysis and understanding of the expectations of mainstream end product users and their general lack of capacity to source directly.

In addition, markets can be built vertically on the international, regional, national, and local levels. A complete understanding of the product’s economic value chain will reveal opportunities. In general, demand will dictate the mix, but CI has found that the vertical mix also depends on:

- geographical closeness to a specific market
- type of product manufactured
- quality and price
- nature of the industry
- production capacity of the producer group

Don’t Bank on the Green Premium
Consumers, particularly North American ones, are fickle, and generally suspicious of green messages. While consumer polls tend show a great desire to buy “green” or “environmentally friendly” products, feedback from actual retailers indicates that, if given a choice, most buyers choose a low price over green content. This is an unfortunate reality, but a reality nonetheless. Products should therefore be functional, price competitive, and of the highest quality, and long-term, stable markets should be targeted.

CONCLUSION
Building markets for NTFPs requires strategic thinking, good information, and common sense. Bringing isolated rainforest producers into the tumultuous mainstream market is a challenging task. Flexibility, sound judgement, and the ability to make decisions under a high level of uncertainty are needed to maximize success.

As a tool for creating an overall strategy for NTFP development this paper is limited to enterprise and business issues. There are
many other ecological and social criteria that must be included, such as the ecological sustainability of particular products and the actual conservation impact of the enterprise. Enterprise development and marketing decisions should be taken within the context of established conservation goals for a particular ecosystem.

**QUESTION & ANSWER SESSION**

**Q:** It seems that this sort of market development creates an information dependency and, additionally, requires producers to conform to a “western”, or “northern” market construct. In that light, is Conservation International investigating or promoting more localized markets, as opposed to strategies based on, say, the US need for handbags or allspice?

**SF:** Yes, we look at markets on local, regional, and international levels — markets are markets, so although there is such a thing as dependence on foreign markets, there is also such a thing as dependence on regional and national markets. Often, the risks are the same and the costs of failure are the same. When looking at NTFPs, therefore, it is always important to determine whether or not they make sense, whether or not you are willing to do it, and whether or not you are willing to take on the issues involved in working in the marketplace, and how all this will affect conservation in a given area.

**Sharon Flynn**

In three years at Conservation International, Ms Flynn has managed the creation of biodiversity enterprises in Guatemala and Peru, and built marketing arrangements in the personal care and food industries. She works closely with communities and NGO partners to design and implement marketing, production, and enterprise training programs, and insure the conservation link of enterprise development. She has extensive international experience in Asia and Latin America in trade and development. She holds her Master’s in International Management from the University of California at San Diego.
Sharon Flynn Working Group

Sharon Flynn led the discussion with Conrad Reining, the Director of the Guatemala Program at Conservation International, and Liza Grandia, a Yale student and Community Extensionist with Conservation International in Guatemala. The discussion centered on the interactions between local and global economies, and how NTFPs fit into this context.

Q: Is CI working in other parts of the world?
Sharon Flynn: We are working in Asia, Africa and Latin America, in regional, national and international markets. In Asia, the emphasis is on the products, while in Latin America it is on the raw materials. In Peru, we work with Brazil nuts, in Ecuador with Tagua, and in Costa Rica and Panama with fruits for the national market — actually for a fruit drink that McDonald’s is making there. In Madagascar, we work on the local level with some basic products and some handicrafts. CI looks at NTFPs as part of a strong conservation strategy. Of course, to do this effectively, we also have to consider the ecosystem and the situation in the particular country to see how they can work with the NTFPs.

Q: You talked about people working in the communities, but how are the people there involved with CI? Are they Guatemalans or are they part of CI? How does it really work?
Sharon Flynn: It really depends on the program. Most of the CI personnel in Guatemala are not gringos — they are local people. This is the reason that CI was founded, 10 years ago — it was a break from The Nature Conservancy because that wasn’t happening. Conrad can give more detail about the program in Guatemala.

Conrad Reining: In broad terms, the strategy is one of conservation. We have been working in the Maya Biosphere Reserve in Northern Guatemala since 1990. The idea there has been to work with the local communities because the central government in Guatemala is pretty weak. You can’t count on the National Park Service or government to do anything. Instead, we need to count on local governments and people. The way we do this is to connect with producer groups that are already using NTFPs, because they already have a vested interest in seeing the forests survive. So what we have done is approach and suggest to them ways of working with these other NTFPs as well. We try to identify ways to diversify and get around some of the problems with middle-men — to get more of the value to the local people. We spend a lot of time going in and talking to these communities and telling
them what it means to work with these products and building the capacity of the community to develop these things on their own with some technical assistance. The basic goal is get the local groups empowered. This then becomes the tool of conservation because once something is set up you have built a constituency within the community that wants to conserve the forests. It might not be a lot of people but if they are interested in conserving the forest then at least there is a local voice.

Q: I work in Brazil where sometimes we have problems when the communities start to commercialize NTFPs. There is always one big company that is getting the product and putting it on the market. How does a company, such as The Body Shop or Ben & Jerry's, really put money back into the community? I don’t see how it is possible to make these NTFPs sustainable and help the community — what will compel these companies to return the money? Furthermore, is this conservation strategy really sustainable? Once these projects leave the communities, we have found that communities cannot sustain the NTFP. So how can we improve the ability of these communities to maintain these NTFPs?

SF: To maintain sustainability they have to use the right strategies. The NGOs need to have it done correctly — NGOs can really push the market around and this is how they can be most effectively involved. They can push the market in the right direction, but it needs to be done correctly. Also, there has to be the management capacity within the communities. What often happens is that there isn’t the education provided and there isn’t the training provided. If the communities don’t know how to manage the NTFPs, then you have to have skills development to have long-term management of the community enterprise. You can’t ask the community to do something that they are unable to do. Usually, they don’t have the technological skills to do the whole product.

On the company side, any business faces the challenge to make as much money as possible. In these situations, where the company might be the only source of information for a single tribe, it has a strong incentive to manipulate their trade relationship. I agree with Terry Turner in his analysis of this dynamic; however, I think that companies need to be recognized for the values they have — they are not necessarily all fat cats, and some do approach their suppliers with a genuine concern for equitable relations. Nevertheless, the producer needs to understand the value of the market, the company, and the particular product. Ultimately, you don’t want to remain dependent on one single company.
Q: I think a good example of this is the Mutran family in Brazil who supplies Ben & Jerry's. In this case, there is a single family making a lot of money from the NTFPs. The communities add value through processing and by providing the basis for a green message, but the Mutrans do not share any of the profit.

SF: The Mutrans are an example of a monopolistic regime. This is the kind of thing CI is working to change. They control the Brazil nut trade out of Brazil and they control the market there. They control all the information and all for their benefit. They are greedy and a lot of producer groups can be screwed over in the process — they are an extreme example of control of the market place. On the other hand, companies do add value. The Mutrans probably add value as well because they know suppliers in Brazil and they have connections in the international marketplace.

This is where your research and understanding of the value chain can help in determining what you should do. Interventions can be made, but you need to understand what is going on. It is not easy to break a monopoly like the Mutrans. It is hard for a lot of producers to get together because each controls only a small percentage of the marketplace. They are all competing, as well, and need to make wise decisions. Idealistic goals like breaking up the Mutrans are not realistic, but there might be a lot of other things we can do to get around monopolies. Cultural Survival does this kind of thing.

Q: How do you analyze the market for a certain product? Can you walk us through this process?

SF: Basically it is just a lot of research: who are the major players, how are the products sourced, what are the distribution strategies, what are the different types of products, and so on. I know a lot about the personal care market, for example, and I had to learn it all before I could begin to be active in it with NTFPs. You need to understand how all these things work. Take The Body Shop — they operate in a $60 billion market. This is a big market and the end manufacturer is going to want to have complete control over the product. They need a lot of different quantities and qualities of the different products. Plus, there is a lot of FDA oversight. All the while we need to figure out all these factors as we develop our strategies. We have to look at the suppliers and the industry trends and read the magazine articles. So, to be independent, these NTFP producers need to understand the markets. They need to talk to these companies and figure out what is good and bad about working with them. We are constantly studying all the information and trying to make decisions based on what is going on — the decision is coming from research.
Q: I was a Peace Corps agroforestry volunteer in Mali. There, I worked to establish local markets in Mali and was working with rural community groups to try to develop local markets. In Mali, many Indigenous plant and animal products had been replaced by western goods, but now urban populations no longer have the money to buy these goods. So we were trying to find ways to introduce these local products back into the market, and I think maybe the challenges were a little different.

SF: Well, no matter what market you are dealing with, you need to ask the same questions: who is the market; does it make sense; what is the product?

Q: Is there resistance on the part of the local urban population because they don’t want their own products and maybe they see the western products as better?

CR: That is an important issue, but it isn’t a driving force. We’re trying to find products that make sense and that people want — that’s a market, and it doesn’t matter where it is. If international markets make sense for the volumes that these projects produce, then that’s fine. Often times there aren’t national markets for these products, as is the case in Guatemala. So, we look at whatever market we can that will work and that will help diversify the production.

SF: There is a competitive advantage with Guatemala, in particular — it is close to the US. Sometimes people think international markets are more risky but that’s not always true. For example, selling to the Mutrans might be more risky then selling to Ben and Jerry’s.

CR: International trade has a lot of experience with various goods, so adding another product can fit into existing market structures.

Q: There are ecological problems that can arise from market involvement and there are market problems that can arise from ecological concerns. A market driven boom-bust cycle can develop that is detrimental to natural populations, or an ecosystem may not be able to supply the volumes demanded by the market. How do you reconcile these forces?

SF: To avoid problems of having communities getting involved in projects that eventually fail, we start projects at a small scale and then build from there. You need to make sure that the market makes sense, and some communities can begin doing the product. Something that people talk about is the idea of franchising. Think of a community building a franchise and an NGO subsidy to figure out what is going on in the market place. Once the community owns the technology and is a business that is interfacing with the market, then you can build leverage. Once one
community has gotten it figured out, then it can negotiate with other communities. You can’t have an NGO go and tell all these communities what to do because there are often errors in communicating the message correctly. It goes back to risk, and how you manage and absorb risk, and being conservative in your actions.

CR: This might not create a lot of jobs right away and you will have only a small amount of production at first, but you want to expand slowly — you don’t want these boom and bust things. You need to keep expectations really low, so that people don’t expose themselves to too much risk. If say you only have four jobs but the project ends up with eight jobs, that’s a bonus. Then you can think that you did more then you thought you were going to do.

Liza Grandia: Also, I think it’s important that everyone knows what is going on so the community isn’t mad if the expectations are not met.

Q: Do you run into ideological conflicts with other NGOs about how to change things? How do you work around this and does it deter your work?

SF: These conflicts deter the work of the entire conservation movement. CI has pissed off some people at The Nature Conservancy as well as WWF, and as a result some people have come over to CI. This has been detrimental and there are still some hard feelings. Even within CI there is a challenge to NTFPs and enterprise development. The staff of anthropologists, sociologists, and ecologists don’t like what I am doing. These people look at what I am doing and say “yuck — this is capitalism!” So again, don’t forget this is capitalism — you can’t do it and pretend it’s not. Producer groups and SEED enterprises speak the same language — they understand the buy and sell mechanism, but the problem comes when NGOs have different views of what capitalism should be. CI isn’t trying to change the whole market, we are only trying to change a small part of it. We are capitalists and that’s what we pursue, but CI is not interested in reconstructing economies — we encounter problems because of that.

Q: What are some of that challenges that you face in marketing NTFPs? Is transportation of the products a challenge?

SF: Cost. Transportation is a cost. For example, in the Colombian Choco there is only one small road so you need a boat. It costs $2000 to get in there — the same price as to get to New York. So, yes, transportation is expensive and you need to include these things in your business plans, otherwise you won’t realize the costs until they finally kill the project.
Global Trade and the Rainforests: Corporate Growth vs Indigenous Prosperity in Tropical Countries

John W. Friede
Director, Worldview, Ltd.

ABSTRACT
Newly established instruments, such as the World Trade Organization and the Global Agreement on Tariffs and Trade, are serving to open international markets by dismantling barriers to free trade between nations. This will serve to facilitate the entrance, and hence the dominance, of multinational corporations in developing nations. Concerned only with their own profit, these corporations will inevitably deplete these nations’ natural resources while maintaining their populations in a state of poverty. Domestic fiscal policies have been emasculated as social instruments by these arrangements, and, at present, tropical rainforests and their associated cultures are nearly defenseless.

INTRODUCTION: A NEW ERA FOR GLOBAL TRADE
In December 1994 the United States joined 124 other countries in the newest expansion of the General Agreement on Tariffs and Trade (GATT). This expansion significantly reduces barriers to trade by lowering tariffs around the world by $744 billion over the next decade, and creates the World Trade Organization (WTO) to police trade among nations (Sanger 1994). The treaty addresses diverse themes that affect tropical countries such as intellectual property rights and agricultural subsidies.

By liberalizing trade rules, the WTO further transfers authority from governments to corporate leaders whose activities are guided solely by the profit motive. Able to effectively “externalize” environmental and social costs, many of the corporations likely to prosper are bigger than sovereign nations. Ford, for example, has an economy larger than Saudi Arabia and Norway combined (Barnet and Cavanaugh 1994). The treaty ignores legitimate concerns for accountability and citizen participation since dispute resolution mechanisms remain shielded from public scrutiny. The toll in the tropics includes accelerating rainforest loss, cultural genocide, and species extinction. Several elements of the agreement subvert efforts to encourage sustainable development.

THE DEBT CRISIS AND RAINFOREST DESTRUCTION
International lending agencies have loaned heavily to less industrial tropical countries because of their rich resource base and apparent potential for economic growth. As interest rates climbed in the late 1970s and early 1980s, tropical countries amassed huge foreign debts while the market value dropped dramatically for cash crops such as coffee and tea. The resultant debt crisis led to spending
cuts in public services such as health care and environmental protection, promoting the intense exploitation of the less industrial countries’ natural resources (Adams 1991; Lambert 1991).

The debt crisis continues to be a major catalyst of tropical deforestation. It is no coincidence that the five countries with the largest rainforest areas are also among the world’s most indebted (Revington 1992). International lending agencies committed to the “market economy” fail to recognize the role of global trade in the process of deforestation. As long as this trade results in foreign debt, opportunities to pursue sustainable development will be scarce (Myers 1992). Sustainable development is development that seeks to meet present needs, without compromising the capacity to meet the needs of future generations (Rural Advancement Foundation International [RAFI] 1994).

Membership in the WTO restricts rainforest countries’ ability to conserve scarce natural resources by eliminating trade barriers such as government export controls. Trade policy removes limits on how much timber can be extracted from tropical forests, undermining efforts to develop markets for sustainably produced forest products. In addition, democratically established tropical timber boycotts are threatened. To keep them, nations may be required to pay the WTO a trade penalty.

TIMBER AND MINING ACTIVITIES: A GLOBAL VIEW

No country with valuable natural resources has pursued its long-term best interests by giving them away. Nevertheless, new WTO trade rules have made bans on whole log exports illegal, discouraging local processing of wood products and obliging tropical countries to make these and other resources available to the highest bidder.

These bidders include Japanese companies that dominate the tropical timber industry, valued at over $8 billion annually (Rainforest Action Network 1989). These companies control the global chain of timber trade and can deprive tropical forest governments of tax revenue by allowing subsidiaries in tropical countries to run at a loss.

Traditional systems of forest property rights and management in Indonesia have been supplanted by timber concessions and development schemes — which grant rights to a few stakeholders at the expense of many others (Barber, Johnson, and Haflid 1993). The timber industry employs only 0.2% of Indonesia’s total labor force. Recently, this industry bulldozed highly productive rattan and fruit gardens of the Dayak peoples of East Kalimantan under military
escort. They clearcut all standing timber leaving nothing but ruined gardens, angry Dayaks, and damaged, exposed topsoil (Anonymous 1994).

In Malaysia, huge timber concessions have been awarded, and the subsequent export of forest products from this region is responsible for 30 to 40% of deforestation. The export industry has already caused erosion, water contamination, species extinction and the annihilation of Indigenous cultures (Lambert 1991). In 1990, Sarawak’s logging industry generated about $2 billion in foreign exchange. However, environmental and human rights activists warn that the last remains of the ancient Borneo rainforest are being permanently extinguished at a rate three times faster than the Amazon rainforest (Human Rights Watch/Natural Resources Defense Council 1992).

In Thailand, commercial logging led to a decrease in forest cover from 29% to 19% of the land area between 1985 and 1988 (Lambert 1991). In 1988, unusually heavy rains hit Thailand’s deforested slopes resulting in landslides that covered entire villages. Four hundred and sixty people died and thousands were left homeless (Miller and Tangleley 1991). Under the WTO, reforestation programs are now a trade violation.

Increased participation by rainforest countries in agreements with international mining companies has historically hurt, and will continue to hurt, these countries and their Indigenous populations. In 1967, a subsidiary of US Steel called Meridional was responsible for the discovery of the immense Carajás iron ore deposit which may ultimately destroy 16% of the entire Amazon rainforest. The greatest destruction occurs when timber is gathered from Indigenous lands for the project’s pig-iron smelting factories (Balée 1994). Throughout the Amazon rainforest, roughly a million gold miners are disrupting aquatic ecosystems with mercury pollution (Lovejoy 1994). As a result of their activities, the livelihood of the Yanomami and other Indigenous nations is threatened (Weiss and Weiss 1993).

In southern Mexico, 450 Lacandón Maya Indians are currently fighting logging interests who have carved roads into their rainforest home, the largest remaining tropical rainforest in North America (Nations 1988). Increased international trade has been described as a “death sentence” for their survival as a culture (Tyndall 1994). Their struggle to protect their timber and other natural resources — and the billions of dollars that investors have lost as a result of the agreement’s inability to integrate Indigenous needs — brings to the forefront the downside of the free market throughout the tropics.

[The Lacandón Maya] struggle to protect their timber and other natural resources ... brings to the forefront the downside of the free market throughout the tropics.
CORPORATE FARMS DISPLACE TRADITIONAL LANDOWNERS

A basic premise of free trade wrongly assumes that competition and efficiency improve living standards for everyone. New global trade rules ban import controls, requiring tropical countries to open their borders to multinational corporations whose agricultural products are often produced below the cost of domestic production. Farmers are forced to intensify production to make up in volume what they lose from lower prices. Indigenous food production systems are replaced by monoculture export crops like tobacco, sugar, or cotton which require heavy chemical use, impoverish the soil, and displace small farmers. The displaced farmers either move further into tropical forests, slashing and burning for subsistence farming, or become part of the growing urban poor (Rainforest Action Network 1992; Ritchie 1992).

Multinational corporations are poised to take advantage of market participation by tropical countries; the 500 largest corporations control 70% of world trade. Strong international competition will keep unemployment high and salaries low in developing countries but, as Henry Ford once said, “If you cut wages, you just cut the number of your customers” (Barnet and Cavanaugh 1994). Common sense dictates that this global system cannot last long.

In the Philippines, millions of farmers of rice, corn and sugar may soon be displaced because of their government’s decision to switch production to export high-value crops like flowers (Tyndall 1995). Farmers in Malaysia and Brazil will soon face a similar fate as their governments switch production to high-value crops for export. As traditional landowners are displaced, cultures are lost and billions of people lose their sense of self and community. The surplus of gifted, skilled, undervalued, and unwanted human beings constitutes the forgotten victims of an emerging global system which prizes the efficient production of goods for export revenue more than the dignity of human beings.

EMERGING ISSUES OF INTELLECTUAL PROPERTY

Under pressure from industrial countries, the Uruguay Round of the GATT formalized Trade-Related Intellectual Property Rights (TRIPS) on the grounds that the absence of patent protection in some countries could amount to non-tariff barriers. Multinational corporations gather information from the genetically rich tropical countries, manipulate it with rapidly evolving biotechnology expertise and then patent the new seeds, pharmaceuticals or other products. Indigenous peoples receive nothing in the bargain, because

The surplus of gifted, skilled, undervalued, and unwanted human beings constitutes the forgotten victims of an emerging global system which prizes the efficient production of goods for export revenue more than the dignity of human beings.
under the new trade rules naturally occurring organisms are not patentable, though genetically altered ones are.

Recognizing the contributions of Indigenous people is crucial. Indigenous knowledge fuels multi-billion dollar industries, ranging from food and pharmaceuticals to chemicals, paper products, and energy. By consulting Indigenous peoples, specialist bio-prospectors can increase their success ratio from one out of 10,000 samples to one out of two. Had US researchers taken advantage of Indigenous advice when collecting plants in the 1950s and 1960s, their success rate could have doubled (RAFI 1994).

Giant pharmaceutical companies benefit the most in their agreements with tropical countries rich in biodiversity. In Merck Pharmaceutical’s arrangement with Costa Rica, Merck receives 10,000 plant, animal or microbial samples for $130 per sample. Since Merck invests an average of $125 million on research for each drug, the discovery charge for one drug arising from the Costa Rica agreement is barely loose change for Merck. Merck’s sales in 1991 alone were $8.6 billion, while Costa Rica’s entire Gross National Product was less than $5.2 billion. For Merck, the Costa Rica contract is a bargain (RAFI 1994).

Merck’s sales are indicative of the economic value of biodiversity. It has been estimated that each medicinal plant that goes extinct could cost drug firms more than $200 million in sales. Just two drugs derived from Madagascar’s rosy periwinkle earn pharmaceutical companies more than $100 million annually as anticancer and childhood leukemia drugs. Pau d’arco, a medicinal plant from Latin America long used to combat malaria and cancers, has a current market value estimated at $200 million (RAFI 1994).

As private companies move into Less Industrial Countries’ seed markets, Indigenous farmers are finding themselves paying for the end product of their own genius. For example, amaranth varieties based on material originating in Latin America have been patented in the United States and are now being marketed in Mexico and Peru where farmers are being forced to pay royalties on their own inventions (RAFI 1994). Industry’s interest in tropical products, such as natural oils, adhesives and latexes, will greatly accelerate the rate at which corporations make claims on Indigenous resources.

INDIGENOUS PEOPLES: ROOTED IN THE LAND

In the face of this global system, about 1,000 rainforest cultures still exist (Revington 1992). Nearly all are in conflict with the expanding industrial economy which has been insatiable in its demand for minerals, timber, energy and other material inputs. Globe-spanning production lines link consumers to tribal societies — to their
dispossession and to the rending of their ancient cultures.

The rapid loss of tropical biodiversity threatens the survival of Indigenous peoples. Approximately 100 species per day are becoming extinct. More species are lost per week now than were lost in total during the preceding three centuries (RAFI 1994). In 1990, the Colombian Government gave back half its rainforests to its rightful Indigenous owners, acknowledging that they were the best guardians of the forest. The role of tribal peoples as caretakers can be appreciated by studying how closely existing Indigenous territories overlap the area covered by the world’s threatened rainforests. Where the rights of native peoples have been ignored, attempts to save rainforests have been uniformly unsuccessful (Revington 1992).

Central to the struggle of landless peoples is agrarian reform. In Brazil, just 2% of the landowners control 60% of the nation’s arable land, and at least half of this land lies idle, since landowners often regard land more as a status symbol than a source of crop production (Bellamy 1992). Extractive reserves have been established as land use systems that have the potential to reconcile forest protection with the needs and rights of Indigenous peoples (Viana et al. 1994). Since their inception, rubber tappers have recognized that raw material production as an economic baseline for extractive reserves has been a losing proposition. They have pursued improved processing techniques and new product development as part of a larger package of alternatives (Schwartzman 1995).

According to nineteenth-century economist Henry Charles Carey, self-reliance is better achieved by the pursuit of commerce as opposed to trade — commerce being defined as short-distance exchange, while trade occurs over long distances. Commerce builds community by binding together its productive elements. Long distance trade undermines community by separating those who make fundamental decisions that affect our future from those who must live with the consequences of those decisions. Commerce nurtures local ownership, but trade spawns absentee ownership. Commerce encourages self-reliance; trade encourages dependence (Morris 1994). The abandonment of Indigenous groups’ sovereignty was never subject to their approval, yet they are subject to the rules of world trade as administered by the WTO. In response, Indigenous communities should not move toward environmental entrepreneurship but toward collective self-reliance.

Recent initiatives by Indigenous groups reveal positive approaches to establish economic self-sufficiency. For example, a group of Kayapo Indians has set aside some of their forest as a reserve for tourism, and some for research that will aid sustainable use practices.
Those who participate in the new wave of colonialism, made possible by global markets, should take to heart the words of one of the most influential economists of the twentieth century, John Maynard Keynes:

I sympathize therefore, with those who would minimize, rather than those who would maximize, economic entanglements between nations. Ideas, knowledge, science, hospitality — these are the things that should by their nature be international. But let goods be homespun whenever it is reasonably and conveniently possible and above all, let finance be primarily national (Daly 1994).

CONCLUSION

For the last fifty years, international financial agreements have served as a political strategy of social transformation in tropical countries at two levels: global and domestic. On the global level, foreign debt was amassed, opening up national economies. On the domestic level, an economic assault on the living standards of the masses ensued. If industrial countries want to help tropical countries, they should consider forgiving foreign debt and substitute their hegemony for equitable exchange. Unfortunately, much of the impoverishment of tropical countries caused by international trade has been institutionalized by the WTO. The new trade rules are based on the unsound assumption espoused by multinational corporations: unlimited natural resources exist worldwide.

The WTO eclipses international lending agencies as the most significant threat to true sustainable development. The treaty concentrates decision-making power in the hands of unaccountable trade experts whose mission is to facilitate corporate access around the globe. As Greenpeace International said in their 1992 report UNCED Undermined, participation by tropical countries and Indigenous peoples in this agreement will promote their “increased sub-ordination to market forces at the expense of local self-reliance, sovereignty, democracy, and the biological and cultural diversity necessary for ecologically sound and socially equitable development” (Rouht-Arriaza 1992).

To counter this, tropical countries need to develop domestic production for internal markets, and support Indigenous initiatives that further the process of self-empowerment, enabling all people, including the poorest, to secure their basic needs and rights while protecting the environment.

Much of the impoverishment of tropical countries caused by international trade has been institutionalized by the WTO. The new trade rules are based on the unsound assumption espoused by multinational corporations: unlimited natural resources exist worldwide.
QUESTION & ANSWER SESSION

Q: What do you think we can do about this?

JF: Part of what we can do is give Indigenous peoples who have been caretakers of the forest for thousands of years at least a voice in how it’s managed today. We need to give them some respect for their sovereignty and support efforts for self-reliance… and revoke the charters of a few big multinationals!

Q: We are applying old economic models to new problems — we need new models. I have found that there is a great deal of good intentions, but I don’t think the tools we need to affect change are available. How can we do this?

JF: Worldview’s philosophy is to work in your community — the power of your community is the power that is most accessible to you. You don’t have to compromise there, because you know what you want. The key is to link up with like-minded folks in other communities. Horizontal connections will enable us to move forward together.

REFERENCES


Schwartzman, Dr. Stephan. 1995. Telephone interview. 19 January.


JOHN FRIEDE
Founder and director of Worldview, Ltd., based in New York City. Founded in 1990, Worldview works with educators to develop curricula that link social justice, economics and environmental issues. Worldview recognizes community-based organizations as the most effective vehicle for public education, and assists them to become forces of systemic change. Friede also serves as Vice-President of Amanaka’a Amazon Network. Amanaka’a educates the general public about efforts by the peoples of the Amazon Rainforest to live and work in harmony with their environment. In 1992, Friede co-founded Federal Land Action Group (FLAG) which works to protect all national forests and promote reform of the US Forest Service.
John Friede Working Group

A broad range of topics was discussed, but few solutions were offered. Many big questions were left unanswered, including what can be done to address barriers to trade while ensuring that local communities are incorporated and treated fairly by international markets. The general theme centered on where to choose one’s battles in the era of the GATT, and a need for an overhaul of the international economic system to remedy these problems.

MAJOR TOPICS

THE STANDARDIZATION OF CONSUMERISM

Local peoples are buying into extra-local markets on all scales. Nevertheless, most of the economic resources are held by a minority. As communities move into increasing states of consumerism, if one is not economically secure one can not be in control of other aspects of personal life, including health care and education.

FACILITATION OF NETWORKS

Worldwide grassroots communities are drawing on political support and the facilitation of communication. One example is the Native Forest Network, an Australian and United States organization that empowers grassroots programs by sharing technical information and resources. Regional technology is allowing for increased communication and networking through faxes, phones, and GIS mapping. However, this technology is not always a positive force for natural resource conservation or management, as the same tools are often used to identify exploitable resources. In each situation, appropriate technology must be used.

THE ROLE OF BUSINESS

Business opportunities could provide the opportunity to transfer management skills and power to local peoples, but what are the incentives to businesses to conduct appropriate practices? It is important for the communities involved to have all of the information they need about the companies in question. Business involvement can undermine local control, nevertheless, there are many opportunities and benefits of community based and managed enterprises. Communities which become dependent on businesses become subject to the fallout of the market. If markets decline, the communities usually cannot subsist on the commodities they are producing, such as cut flowers or coffee. Some development projects are looking
at ways to mitigate the effects of business on communities through searching for niche markets, diversifying products, and adding value in the community.

THE ROLE OF NATIONS
Nations can be a positive force if they have an agenda that is not profit oriented. To ensure this, greater participation by local groups is needed in the national political arena. Nevertheless, the positive or negative effects of national governments on communities depend on who those communities are. For example, ethnic minorities that are not considered citizens may be targeted for exclusively negative influences by national governments.

The role of regional governments is often extremely important in natural resource management. For example, in South Africa, the States determine and implement environmental regulations. However, even though governments are instituting such regulations, NGOs are often closer to primary production and to communities than are national governments, and are thus often in a better position to understand the dynamics and to work for positive change.

OUR CONSUMPTIVE BEHAVIOR
We, the industrialized world, must recognize our own consumptive patterns as causal agents in tropical exploitation. This awareness relies upon more effective education in consuming nations and a change in the way success is measured — it can’t continue to be strictly monetary.
Appropriate Geomatic Technology for Local Earth Observation

Peter Poole
LEO Project

ABSTRACT
Geomatics is a useful new term for the use of advanced information technologies for the recording, storage, manipulation and analysis of geographical imagery. It includes remote sensing, global positioning systems and computer-based image manipulation and analysis. While high technology geomatics has tended to concentrate analytical power, recently developed, affordable systems now permit land-based peoples to use geomatics in pursuing land claims and environmental monitoring. New, off-the-shelf information technology makes it possible to mimic satellite-sensing capabilities in light-aircraft based systems that are more appropriate for local applications. The Local Earth Observation Project has adopted an applications-driven approach and built a complete system that can act as an alternative or complement to satellite systems. Its capabilities are consistent with expressed needs of many land-based communities and with the implementation priorities of the Biodiversity Convention.

The idea for this project, Local Earth Observation, came to mind after meeting with NASA officials working on the Earth Observing System (EOS), a constellation of satellites to be launched in 1996 as an instrument for planetary management. Data streams from these satellites will flow into computer models designed to mimic vital earth processes and reveal significant trends. Ultimately these will be converted into options, or justifications, for political decisions.

This is not a comforting prospect. The track record for international environmental negotiations is discouraging and it is difficult to believe that the self-serving nationalism so conspicuous in the debate over ozone and climate change will be suspended when it comes to selecting among likely options. Delegations at the 1992 Earth Summit consistently championed national interests rather than commit to the cooperative actions needed to address global environmental issues.

Satellite systems concentrate vast arrays of sensitive data in the hands of institutions supported by the industrialized nations. Since first introduced in the 1970s, their output has been monopolized by organizations with the technical capacity to analyze complex data: land management agencies, resource corporations and academic researchers. The prices for satellite imagery, initially subsidized, have risen to as much as $5000 for a single frame. Plans to privatize processing and distribution of satellite information are likely to restrict access by increasing prices further.

Remote sensing is often referred to as a “technology in search of an application.” During its brief history, it has always been technology-driven — a hangover from its military origins. Although justified in terms of potential applications, academic research reinforces this tendency by focusing upon sophisticated and subtle technical
TECHNICAL ALTERNATIVES FOR LOCAL EARTH OBSERVATION

Technological imperatives, military origins, institutional research and political convenience have combined to advance remote sensing as a technology that concentrates rather than diffuses the power that comes with the possession of global information. This has been widely presented as inevitable but this is no longer the case. New information technologies from a variety of sources can be integrated to make cheap and credible alternatives to space-based systems.

The LEO Project is an effort to explore and demonstrate this alternative, to counter these concentrating tendencies with one that is dispersive, to shift from technology-driven to applications-driven systems, to localize geomatic technology so as to empower land-based people and environmental NGOs in remote areas, and to democratize access to environmental information that is becoming increasingly significant and occasionally proprietary. In deciding what technologies to mobilize in taking this direction, we took account of global and local trends from an applications perspective.

APPLICATIONS FRAMEWORK: GLOBAL SCALE

On a global or continental scale, three current trends set a framework for developing local capacities to collect and apply environmental information: 1) Negotiations between Indigenous Peoples and national governments. 2) An increasing focus upon community-based or people-centered conservation. 3) The emergence of global conservation agreements which call upon governments to recognize the historical contribution of land-based peoples to biodiversity conservation and support them as exponents of sustainable resource development.

REGAINING INDIGENOUS LANDS IN THE AMERICAS

It has been estimated that the current round of negotiations will lead to Indigenous Peoples regaining various degrees of control over a third of the Amazon Basin, and to about 13% of the Americas in total. With virtually no technical resources at their disposal, the communities scattered throughout these lands are faced with a huge double task: to protect their territory from intrusive settlement and industrial resource exploitation, and to adapt and reinforce traditions of sustainable resource utilization in a contemporary context.

With virtually no technical resources at their disposal, the communities scattered throughout these lands are faced with a huge double task: to protect their territory from intrusive settlement and industrial resource exploitation, and to adapt and reinforce traditions of sustainable resource utilization in a contemporary context.
It is self-evident that traditional knowledge and practice has proven sufficient to care for these lands in the absence of external pressures. Such traditions remain at the core of many current projects to reinforce local resource economies. But this knowledge does not necessarily equip local groups to deal with the manifold effects of distant industrial economies in remote areas: the impacts of roads, mines and dams, trans-boundary pollution, deforestation, and colonization. Geomatic technology, if localized, has the potential to amplify the capacities of small, scattered communities to monitor and protect large territories.

COMMUNITY BASED CONSERVATION

The principles and practices of environmental conservation have evolved within the western scientific community, with a strategic focus upon protected areas and species. It is now widely acknowledged that a protected area system must often be combined with the active engagement of land-based people in the management of the resources upon which they directly depend. The idea of community-based conservation has taken hold within the environmental community, and mainstream NGOs have launched programs designed to involve peoples living close to protected areas. But concrete accomplishments are rare, and this idea is in danger of becoming an empty slogan, prompting deference rather than action — compulsory rhetoric found only in the Vision Statement of project proposals.

While initiatives taken by conservation groups are producing ambiguous results, another set of historical circumstances is prompting land-based peoples to assume a more assertive role in conservation; to seize the conservation agenda. They are realizing the negotiating advantage that comes with a better data base and are adapting advanced mapping and information technologies in imaginative ways: to gather and record traditional local knowledge, to demarcate and protect recovered lands, to restore degraded habitats, and to manage traditional resources under sustained use regimes.

These experiences demonstrate that “owning” the information about land and resources can be as important as owning the land itself. This idea is gaining currency in Indigenous strategies to regain, confirm, and exercise authority over traditional lands. Arguably, these activities also qualify as virtual implementation of the Biodiversity Convention.

“Owning” the information about land and resources can be as important as owning the land itself.
THE BIODIVERSITY CONVENTION AND AGENDA 21

The global conventions emerging from the 1992 Earth Summit are essentially designed to repair the damage inflicted by incoherent industrial resource exploitation, much of it on lands appropriated from Indigenous peoples. Although this is not explicitly stated, it is clearly implied in language which calls upon national governments to respect the unique contribution of Indigenous knowledge and practice and to support its application in implementing these agreements. Scientific advisory groups are now discussing structures and methodologies for implementing the Biodiversity Convention. A recent Open-Ended Intergovernmental Meeting of Scientific Experts on Biological Diversity (UNEP 1994) was charged with the “identification of innovative, efficient, and state-of-the-art technologies [on] conservation and sustainable use of biological diversity...” Six technologies were prioritized:

- habitat, vegetation, and gene-variation mapping
- regional mapping technologies
- remote sensing for spatial heterogeneity and complexity
- geographic information systems
- aerial survey, patrol, and photography
- traditional knowledge of territories and habitats

These priorities correspond to the goals of the LEO Project and to the expressed interests of many land-based communities.

APPLICATIONS FRAMEWORK: LOCAL SCALE

SURVEYS OF LOCAL NEEDS FOR ENVIRONMENTAL INFORMATION

Technical development was based on surveys of over 200 conservation projects initiated by Indigenous or land-based communities (Poole 1994, 1995), about half of them involving some aspect of geomatics. This led to a first approximation of the needs and interests in locally-acquired environmental information. The main conclusion was that simple photo and video technology is sufficient to meet most current local needs. On the basis of these surveys, applications fall within five general categories:

- Mapping Land Use and Occupancy: In support of negotiations over land, high-resolution and geocoded photography of traditional sites provide irrefutable evidence of occupancy.
• Demarcating Traditional Territories: GPS units have been used very effectively in self-demarcation projects. In some cases, aerial imagery has been used to plan demarcations.
• Protecting Demarcated Lands: The kinds of boundary markers that meet the regulations have little effect upon incursions and some groups in the Amazon are looking into GPS/video monitoring systems adaptable to light or ultralight aircraft. High resolution is not necessary — ordinary video is quite sufficient to detect changes near boundaries.
• Biodiversity Conservation and Management: The wide range of local applications using both photo and video includes habitat mapping, animal census-taking, water quality monitoring, and forest management.
• Ecological Damage Assessment and Restoration: Assessing impacts of industrial forestry, mining, water pollution, and monitoring the progress of landscape restoration projects.

APPROPRIATE TECHNOLOGY FOR LOCAL EARTH OBSERVATION

The most critical decisions in designing the LEO system were about which technologies to exclude, on the grounds of cost or unnecessary complexity. Among the lessons learned from these surveys is that many users do not need photogrammetric accuracies of a few centimeters, nor do they need acute and specific spectral data. To detect and monitor incursions on protected lands, video is adequate. To make inventories of the biodiversity of small sites, high resolution photography is sufficient. A combination of video and photo is adequate for general or detailed monitoring of habitat regeneration.

Advances in the development of light aircraft remote sensing systems has followed two main paths. One is in refining imaging systems by increasing spectral sensitivity. The other is in improving the positional accuracy of the acquired imagery.

The first path has yielded a generation of video-based “multispectral scanners” capable of capturing data in narrow spectral bands, or “windows.” Such scanners are excluded from the LEO system on the grounds that these are more suitable for basic scientific research than routine mapping and monitoring operations. Sophisticating the LEO technology in this direction would yield diminishing returns in terms of the expressed needs of land-based communities.
GLOBAL POSITIONING SYSTEM (GPS)

The second path of development is in the technology used to guide survey missions and record the position of the images. This uses the Global Positioning System (GPS), originally designed to enable submarines to locate themselves more accurately. It comprises a net of 24 satellites that emit signals that can be picked up by a GPS receiver. When three signals are received, the GPS unit automatically computes and displays its geographic position as a “waypoint.” Users can enter their own waypoints into the GPS unit and then use it to navigate between any series of waypoints. The GPS unit can also compute ground speed, time of arrival, and so on.

In the world of mapping, GPS technology is exerting an impact equivalent to that of the transistor in the world of communications. Coupling GPS units with cameras generates a powerful system for environmental monitoring. This union has two attributes. First, all images are “geocoded” — that is, the center point of the image is recorded to an accuracy of 100m or better. Once geocoded, these images can be compared with any other kind of geocoded data, including maps, aerial photographs, and satellite images. It facilitates local-global data trade. Geocoded information is also acquiring a degree of legal acceptance, useful in responding to incursions on Indigenous lands.

The second attribute is that air survey missions can be flown without using maps. The GPS satellite net literally guides the aircraft along a predetermined mission track and fires the cameras at appropriate intervals. All mission tracks are stored in the notebook computer which integrates the imaging and guidance systems. These flight patterns can be recalled and reflown at any time, making this a useful system for monitoring environmental change.

Geocoding also equips local groups to engage in direct data transactions with satellite systems such as EOS. They can amplify satellite imagery by gathering highly detailed data from specific sites through the same spectral window. This “ground-truthing” of satellite information is a service continually needed by such systems. This is recognized by NASA, which runs an informal Light Aircraft Research Program, exploring real-time linkages between light aircraft and EOS.

THE LEO ENVIRONMENTAL MONITORING AND MAPPING SYSTEM

The LEO Project develops technology to enable local groups, communities, and agencies to acquire, analyze, and apply the information needed for biodiversity conservation and the sustainable development of renewable resources. Following a strategy of demonstrating rather than debating the merits of this approach, we have constructed a mapping and monitoring light aircraft, equipped with an integrated mission guidance and imaging system.
onstrating rather than debating the merits of this approach, we have constructed a mapping and monitoring light aircraft, equipped with an integrated mission guidance and imaging system using the most simple technology consistent with operational utility and safety. It has these elements:

**Aircraft**

The aircraft used is a Murphy Rebel, in the experimental category. It has been substantially modified for remote area operations with the addition of long-range tanks, reinforced landing gear, a three-bladed propeller, and numerous reinforcements to the fuselage. Two camera hatches and equipment racks that will accept 70kg of equipment have been installed behind the two seats.

**Mission Guidance System**

This is based upon an SEL 2000 GPS unit connected to the imaging system via a notebook computer. The computer display can be used interactively with local users when planning missions and provides an image to guide the pilot along the predetermined survey track. This image can also be transferred to a navigation screen on the panel.

**Gyro-Stabilized Mount**

The GPS records the position of the aircraft in space at the moment of camera exposure, but this position can only be projected to the image center on the ground if the camera plane is level at that instant. A low-cost stabilized mount has been developed, using auto-pilot gyros and a second computer. This uses fast servo motors to correct for aircraft movement on three axes.

**Photo Cameras**

The camera being used for the current air trials is a 35mm Contax RTS, which has been calibrated and equipped with the fiducial plate required for stereoscopic image analysis. The Contax contains a unique film-flattening vacuum system, producing images of high quality for these applications. There are also mounts for 70mm cameras.

**Video**

Some researchers have developed sophisticated video-based multi-spectral scanning systems. For the LEO system, we have decided to rely on straightforward color video.
Digital Frame Cameras

These closely resemble photographic cameras and often share the same optics, but the photo emulsion is replaced by a CD array of a million or more pixels. They directly capture still images in digital form and promise to eventually replace video-based scanners. There is an advantage to acquiring direct digital imagery if it is to be subjected to computer analysis. Although spatial resolution is inferior to that of conventional photography, it is superior to the still images derived from video. For use in light aircraft, the current limiting factor is storage — single images occupy a minimum of one megabyte. We expect to incorporate a digital frame camera within a year or so.

CURRENT STATUS AND FUTURE PLANS

The LEO aircraft is now undergoing trials in the Pacific Northwest. These are being conducted in collaboration with Indigenous resource groups and environmental organizations. The ultimate objective is to transfer this capacity overseas and a proposal has been developed to establish a self-contained local earth observation center in Central America.

REFERENCES


Peter Poole

Dr. Poole began his career as a Glaciologist and an Arctic Parks Planner. For the last 18 years he has worked as a freelance consultant on community-based renewable resource development, environment, land use, occupancy, and mapping projects with Indigenous Peoples in the Arctic, the Pacific Northwest, and Central and South America. Dr. Poole has also been conducting policy research for NGOs in Africa and Southern Asia.
Among the most urgent threats facing Indigenous cultures is how to get governments to respect their land claims, how to demarcate these claims, and how to monitor and protect these lands. Aerial imagery works well in helping Indigenous peoples respond to external threats, as it amplifies local capabilities to monitor and protect traditional lands in such a way that the relevant government agencies cannot readily dismiss the Indigenous claims.

The discussion was oriented primarily around the technical difficulties involved in Dr. Poole’s work, although a few questions were directed at the impacts of technology on Indigenous cultures. Dr. Poole opened the session with a brief discussion of the technical difficulties involved in the one-year building of his specially designed plane, and how he got his projects with Indigenous cultures in Canada going while the plane was being designed, built, and tested. While the plane was being built, Dr. Poole went around to various groups, told them what his plane could do and what his imagery could be used for, and asked them if they had any use for such information (which he would provide at cost during the testing phase). The following text picks up at the end of the opening monologue.

Peter Poole: In British Columbia alone there are currently 27 separate Indigenous land claims in Canadian courts. Because there is a great deal of merchantable timber in these areas, timber industries are pressing hard for their own uses of the land. Local Earth Observation (LEO) was used in a few cases where the areal extent and a general bioassessment of the land claims needed to be done. A smaller part of this project was in the assessment of timber cutting boundaries, in order to determine whether or not the timber industries involved were following the law. In many cases, however, the imagery obtained from LEO’s flights showed that timber companies were blatantly violating most conservation laws involving harvesting practices on these lands. This information is practically impossible to obtain on the ground, due to restricted access or difficult terrain. An additional advantage to LEO’s work is that the imagery and flight path can be stored on computer, which allows for easy monitoring in the future.

Conrad Reining, Conservation International: Can you produce your own maps?
PP: Yes. There are dozens of software packages available that can do mapping from imagery quite easily.

Jim Murphy, Tufts University: How much memory does digitized information require?

PP: Quite a bit. Computers are keeping pace with memory requirements quite nicely, although sometimes it is the computer limitations that hinder work. Also, photo companies can digitize photos now, cheaply and quickly, although fiducial marks are sometimes cut off.

Ramzy Kanaan, Clark University: What do you do with video imagery?

PP: Not much right now. It is primarily used for basic mapping, that is, “what’s going on here?” We’ve used it to find point pollution sources in the Queen Charlotte Islands, and to update old maps for things like buildings.

Emily Harwell, Yale F&ES: Why would you want a moving image?

PP: Well, for example, you could fly the perimeter of an area to see what there is along this boundary without taking hundreds of still photos.

Mathilde Snel, Clark University: Are there cheaper alternatives to building a plane?

PP: Fixing cameras to a plane’s wings is not practical over 400ft above the ground, because beyond that you are unable to get stereoscopic photos. In any case, it is very dangerous to fly that low. There is a group in Arizona that is designing something that clips on to the side of an aircraft to mount cameras on, but it is still in the design stage.

Lisa Beaudoin, Worldview Ltd.: How manipulable is the digital data?

PP: Once it is in the computer, you can do anything you wish. However, being credible is far more important, and these scenes are meant to be ground-truthed.

Austin Troy, Yale F&ES: Can remote imagery be used in court, and if so, what are the standards for admissibility?

PP: Yes it can be, but I don’t. I pass on imagery to those for whom I work, and sometimes they use it for legal purposes. For example, the Sierra Club Legal Defense Fund used it when looking for timber companies’ compliance to stream buffer-strip laws. GPS can place your imagery to an accuracy of 2 to 5 meters when ground base stations are available nearby to calibrate to, and so the images can be placed very precisely. It can be used in court because it is easily replicated, and if the evidence is questioned, you can go there in person to prove it.

EH: Does the mapping of territorial boundaries change the spatial orientation of Indigenous people?
PP: An Indigenous group in Venezuela contacted me to do a project, and they have always told me what they want to do. And when I present the photos I take, they have no trouble connecting their terrestrial experience with views from above.

One interesting example is that the First Nation on Vancouver Island has an interactive CD-ROM database, where you can click on a map and have an audio-visual presentation of information relevant to that place. They’ve included oral histories and their creation myth sequence into the database. Basically, they’ve put Indigenous knowledge into a different context — Indigenous legends on maps. Legally, this helps with land claims, and it also helps preserve some of their heritage.

Laura Appell: How much does your system cost?

PP: It is much cheaper than most methods or approaches; you can buy a plane like mine for what it takes to fly the Canadian government’s remote sensing plane for 10 hours. It will get even cheaper — right now the biggest cost is the geostabilizer mount for the camera, which allows it to point directly downward even when the plane’s pitch is not oriented with the ground.

Payal Sampat, Tufts University: What are the laws relating to aerial photography?

PP: There’s no consistency. In Canada, I classify my plane as experimental (since it was home-built), which does not allow me to do full commercial work. However, it does allow me to have a hole in my plane for the cameras without having to go through all of the bureaucracy involved in having a hole in a “normal” plane.
The Role of Environmental NGOs in the Changing Tropics: Networking for Community Empowerment

Jose Roberto Borges
Project Support Coordinator, Amazon Program, Rainforest Action Network

ABSTRACT
The Rainforest Action Network (RAN) has grown over 10 years to its present size and status by being committed to networking. Close contact with local communities has enabled RAN to promote effective action, both in those communities and in consuming communities. Political and technical support in the rainforest is complemented by persuasion and boycotts of destructive companies. This coordination is made possible through true partnerships with local rainforest organizations. Ultimately, this structure allows the agendas of local people to be heard internationally, and permits effective coordination against destructive multinationals.

Good morning everybody. I am thankful to be here at this great encounter. I wish that I had the time to meet every one of you, so that we could learn of each others’ experiences. I have already met some great people here, and I am sure there are many more of you.

I am going to be talking about a slightly different kind of technology, of perhaps the oldest kind of technology: networking. We have been networking since we got out of the caves. The purpose of this presentation is to generate some constructive reflection on the role of environmental organizations networking with Indigenous and other environmental organizations in the tropics. This presentation will be based on the concrete experience of Rainforest Action Network in recent years.

I will start with a very brief introduction to what the Rainforest Action Network (RAN) is all about. We were founded in 1985 by Randall Hayes, who is still the executive director. RAN is a San Francisco-based non-profit environmental organization working to conserve the cultural and biological diversity of tropical rainforests worldwide. We have grown quite a bit. Today, with the support of an active 25,000 membership and 50 Rainforest Action Groups nationwide, RAN is one of the leading organizations in the US working on behalf of the rainforest and the human rights of its traditional inhabitants. Through political and technical support, financial assistance, and educational campaigns directed at consumers in industrialized countries, RAN supports the efforts of Indigenous populations and other forest communities in securing their traditional livelihoods while helping to halt the destruction of their homelands.

In the past few years RAN has developed successful campaigns around the world. In Hawaii RAN campaigned against geothermal development and in the continental US it persuaded several Holly-
wood studios to stop using Lauan plywood for movie sets. In Costa Rica, RAN helped to stop the Stone Container Corporation from building a large chip mill in the rainforest. In Brazil, RAN joined collective efforts which led to the demarcation of 5.28 million acres of extractive reserves and the creation of the Yanomami Park, while in Ecuador, RAN funded the Quichua, Achuar, and Shiwiar Indians’ march to the capital city of Quito, resulting in the demarcation of 2.5 million acres as Indigenous territory. In the Philippines, RAN was partially responsible for stopping Scott Paper from converting rainforests into Eucalyptus plantations. In Papua New Guinea, we successfully pressured Chevron to modify its operation to provide for greater environmental protection.

RAN has also financed the efforts of several organizations and community based projects through its “Protect-an-Acre” Program. This is an alternative to “Buy-an-Acre” programs — a different approach. As an organization we don’t endorse the purchase of land as a conservation mechanism because we believe that it takes the responsibility of the state to implement important changes such as the demarcation of Indigenous lands, extractive reserves, and other conservation areas. The Protect-an-Acre Program is an attempt to direct financial resources to very site-specific grants. The maximum for a grant is $5000, so it is a small contribution but it can go a long way.

RAN’s Protect-an-Acre Program has been an extended effort to contribute directly to forest communities struggling to defend their most basic human rights and to protect the rainforests — the natural resource base they rely on for survival. The Program has already successfully contributed to several important projects throughout the Amazon Basin and other regions. These are projects that are primarily aimed at achieving land rights for forest communities and implementing sustainable development activities to improve their standards of living, while securing the ecological integrity of the forest.

Presently, RAN is devoted to strengthening long-term programs in three major areas: corporate responsibility, natural resource use, and support for Indigenous rights and sustainable development at the community level. At the corporate responsibility level, RAN pressures multinational corporations causing destruction in the rainforests into practicing socially and environmentally sound business. I like to see it as an issue of corporate responsibility rather than just boycotts — I think you have to be more grounded. We are trying to invite corporations to practice socially and environmentally sound businesses, but sometimes that is not enough. Our present focus is on Mitsubishi and Texaco. We are in fact launching
a boycott on both because their track records haven’t been very respectful to the environment or to traditional peoples.

The Wood Conservation Campaign highlights RAN’s approach to natural resource use. This campaign seeks the reduction of wood consumption in the United States by promoting alternatives such as the cultivation of kenaf and hemp for paper, while calling for a ban on all tropical hardwood products not harvested in an environmentally benign and socially beneficial way. RAN’s Amazon Program provides direct political and institutional support for Indigenous and other traditional forest communities in the Amazon Basin in Brazil, Ecuador, and Peru. The Amazon Program will expand to other Amazonian countries when resources are available. In addition to its main programs, RAN also functions as an information clearinghouse, disseminating the facts on the current state of the rainforests and the different efforts to stop its destruction.

RAN’S TRADITIONAL PEOPLES PROGRAM

I am going to focus my talk here on our traditional peoples program. We promote traditional peoples’ goals by finding institutional and political support. I am in charge of institutional support for the Amazon program, which means reaching out for financial resources for community based projects and other initiatives coming from those organizations working with Indigenous and other traditional peoples. We also try to connect communities to researchers or scientists so as to access technical know-how.

RAN has accomplished a great deal in the past few years. To cite two of our many successes, RAN has worked closely with the Organization of Indigenous Peoples of the Pastaza (OPIP) in Ecuador and the Indian Research Center in Brazil. Through a five-year partnership with OPIP, we supported their efforts in gaining autonomous control of 2.5 million acres of traditional lands. We are now providing financial and political assistance in their historic negotiations with Arco Inc. to secure environmental and social safeguards in oil prospecting in the region. In Brazil, we have been providing financial and technical support for the Indian Research Center for the past six years. The Center combines traditional Indigenous knowledge with modern technology in pursuing alternatives to unsound economic development. Projects include work on the recuperation of degraded lands, self-sufficient Indigenous enterprises, and integrated resource management.

We have been developing a database of institutions doing research in appropriate technology, and various kinds of appropriate energy sources, such as hydroelectric and solar. For example, we
have arranged a program with Trimble Navigation in California, who have agreed to lend a GPS unit to the new Instituto Socioambiental, the Social and Environmental Institute, in Brazil. They are doing very important work in demarcating Indigenous territories as well as the integrative management of resources found within those territories. So Trimble Navigation ended up donating two GPS units, which have been used in work with the Waãpi Indians in Pará and in constructing preserves in the Xingú.

DEFINING A NICHE

The most important first step in understanding your role as an active participant in the framework of organizations contributing to conservation efforts in the tropics is to determine your own niche as an organization. This apparently easy task is sometimes difficult to accomplish because of a lack of understanding of what really goes on in the tropics or due to simply not knowing which direction to take. Rapidly increasing demands may overwhelm you even before you get started and the vast array of possible ways to contribute leads many well-intentioned people to duplicate efforts unnecessarily. In order to find your niche, you must first clearly define your organizational goals, resources, and commitment.

Effective organizational goals should promote real partnerships with organizations in the rainforest countries. This will not only avoid paternalistic and unilateral relationships, but will also foster equal participation in implementing solutions. In fact, equal participation should be considered a pre-condition for networking with any organization in the tropics.

At RAN, we recognize the critical importance of developing real partnerships with forest communities who suffer from unsound government and corporate development policies on a daily basis. Our strategies are designed in close consultation with the legitimate associations that represent the communities’ needs and rights. Through years of experience working with forest communities we have learned to identify how seemingly local problems are essentially caused by macroeconomic forces. Therefore, we enable local communities to understand how foreign economic interests affect their lives and help them to devise ways of organizing against development practices that jeopardize their traditional livelihood and resources.

Thus, RAN’s niche in halting the destruction of the tropical rainforest is through direct support of its traditional inhabitants and by applying pressure on the corporations and institutions in the North that are partially or fully responsible for the destruction. All
the while, we are also being constructive by pursuing alternative models for natural resource use.

One of the projects we have financed through our Protect-an-Acre Program is a bilingual education program for the Yawanawá Indigenous peoples of the Alto Juruá region of the western Amazon. The Yawanawá kicked out the missionaries from their territories some years ago. Now they have started a new village, where they are implementing some marketing initiatives, including a contract with Aveda. They are producing materials for lipstick and shampoo. This slide shows their nursery and that is their final product, urukü.
Sharon Flynn’s presentation gave me a lot of enlightening information about the role of green products — I left disturbed. I need to think about it…

NETWORKING AND EMPOWERMENT

Once an organization’s niche is established, one should identify its partners — the individuals, associations and organizations that will collectively design the objectives and strategies to be accomplished. Here, one should always be aware of the legitimacy of the parties involved to avoid establishing deceptive partnerships.

The number of organizations and individuals working to implement both the social and biological conservation in the “changing tropics” is immense, probably in the tens of thousands. However, finding a handful of trustworthy partners does not have to be that difficult. The general rule is networking. Just contact those people you already trust and try to identify a well-established organization working in the region or on a particular issue. Often, you will find ways of collaborating with other groups instead of trying to reinvent the wheel.

LEGITIMACY

In addition to general networking, it is our practice at RAN to visit frequently the regions where we are developing programs. This allows us to meet directly with the members of different organizations, visit forest communities, and talk to the local leadership.
Many times we participate in community meetings, which are especially helpful in revealing how a particular community reacts to a given problem. We believe that regular field visits are the best way to learn how representative our partner organizations are at the community level. For example, in a recent trip to Aguaruna and Huambisa villages along the Marañon River in Peru, we were able to verify that those communities had exactly the same opinion about
oil development on their lands as the organization which formally represents them in Lima, the Aguaruna and Huambisa Council (CAH). So, CAH can be seen as a good example of an organization that is well connected to the base, the grassroots level. The degree to which an organization is connected with its constituency is usually a good indicator of how representative and legitimate it is.

At RAN, we really try to identify and work with those organizations that are also working at the community level, for we believe they are more legitimate and effective. Through supporting these kinds of organizations we reach out to a much larger number of people, empowering not only those individuals working within the organizations, but communities as a whole.

COMMITMENT

Long-term commitment is another essential component in networking with organizations in the tropics. No matter how capable your partner organization may be, reliable and effective networking can succeed only if based on a long-term commitment. The lack of long-term commitment on the part of Northern NGOs to their co-workers in the tropical South is a frequent cause of unfulfilled expectations, disillusionment, and failure. Northerners should not take on issues just because they are convenient. I recently heard a comment by a senior staff member of a respected Northern environmental NGO who said the Amazon was no longer an interesting issue for the World Bank and US NGOs. Whether he was joking or not, this is exactly the kind of attitude that leads many people in the tropics to believe that northern environmentalists are not fully committed. The Amazon, home to one third of the world’s remaining rainforests, is and will continue to be an extremely relevant issue to the North for years to come. It is only through dedicated long-term commitment to serious and equal partnerships with Southern NGOs that we have a chance of going beyond the rhetoric of conservation in the tropics.

Long-term commitment provides for solid partnerships with organizations in the tropics, strengthening their infrastructure and their ability to respond to issues effectively. Through our Amazon Program, for instance, RAN provides both financial and political support for Indigenous communities, rubber tappers, and other forest dwellers who have traditionally inhabited the Amazon rainforests in an ecologically sustainable fashion. We strongly believe that empowered communities are the best caretakers of the Amazon Basin. Hence, RAN is devoted to help forest communities achieve control of their traditional territories.
In addition, RAN’s Amazon Program researches how US-based corporations cause social and environmental destruction in the Amazon Basin and the governmental policies that allow this to happen. By monitoring these macroeconomic dynamics we are able to determine which companies should be held accountable for causing social distress and environmental degradation in the forest communities we work with. We also engage legal mechanisms to pressure such companies into practicing socially and environmentally sound business.

SEEDS OF CHANGE

Clear goals and long-term commitment are the keys to building a strong organization that will not only be effective in supporting its partners in the tropics, but will also develop a very respectable profile here in the North.

In its ten years of existence RAN has devoted itself to strengthening its niche and establishing long-term commitments with organizations in the tropics. With the support of a dynamic network of hundreds of organizations and individuals, we have been able to improve the infrastructure of many organizations in the South in order to optimize our communications and their ability to deal with local needs. This process, in turn, has enabled RAN to access strategic feedback from its partner organizations in the tropics when designing and implementing our campaigns.

The contribution of Rainforest Action Network in the “Changing Tropics” has been to secure the ecological integrity of the rainforests and the respect for the human rights of their traditional inhabitants, including Indigenous peoples and other forest dwellers. To achieve this goal, RAN works through a dynamic network of organizations and individuals, with a long-term commitment to partnerships. We seek to provide organizations in the tropics with direct access to information and resources, so that they can be empowered and implement their own vision of development.

I will just leave you with a Brazilian saying: “O saber do povo é a sua vida” — The knowledge of the people is their life. Thanks much.

JOSE ROBERTO BORGES

Born in São Paulo, Brazil, Borges’ career began as a mountaineer and ecotourism guide in Brazil while he pursued a degree in applied chemistry. In 1993 he received a BS from University of California at Berkeley in Conservation and Resources Studies with an emphasis on Integrated Resource Management. Since 1990, Borges has been with the Rainforest Action Network, where he developed their Brazil (Amazon) Program and has acted as a liaison to Latin American non-governmental and Indigenous organizations. Currently Borges is the Project Support Coordinator for the Amazon Program.
Jose Roberto Borges Working Group

The main themes stressed in this workshop were the need for long-term commitments from NGOs, better coordination among all parties, the identification of people with whom it is most effective to work, and the dangers of representation by non-Indigenous professionals. These themes are intertwined. For example, coordination among organizations (North-North, North-South, and South-South) can help identify true Indigenous community leaders and evaluate proposed business ventures. Coordination also mitigates the danger of Indigenous people either having to rely on only one source of information, or getting conflicting advice from various NGOs. Sharon Flynn suggested that coordination would be more effective between staff members than between whole organizations due to competition over resources.

As for identifying the most effective people to work with, Mr. Borges suggested that Indigenous leaders may possess a bias different from the community at large. Terry Turner added that some professional Indigenous leaders represent developing bureaucracies more than they do communities.

It was generally agreed that non-Indigenous professionals should not attempt to represent Indigenous communities. Rather, it is better that they merely present cases. For example, the goal of the Rainforest Action Network is to empower the Indigenous peoples to make decisions by providing information, not to represent them outside the community.

The need for long-term commitments from NGOs and green capitalists was illustrated with several examples. It is particularly important for enabling a cultural understanding adequate for identifying a community’s needs.

The following excerpts expand on some of these themes:

**Gary Dunning, Yale F&ES:** How do you establish the legitimacy of the organizations you work with? What factors do you look at to find out if they are truly representative organizations?

**Beto Borges:** Well, we visit the region and try to ascertain the historical process of the formation of the organization. We have to beware of biased leaderships who are advancing their own goals that may not necessarily be the goals of the community. We contact other environmental groups working in a region, and we have found that networking with one trusted group can help identify other collaborators.

**Terry Turner:** I’m interested in the relationship among Aveda, RAN, and the Yawanawá.
BB: Our involvement is extremely limited in that all we do is support the Indigenous groups by providing information so that they can make informed decisions about their own futures. We try to find out what these companies are all about and supply this information to the Indigenous associations, who are the ones who decide whether or not to get involved. Personally, though, I’m a bit critical of these relationships, because I am not convinced that any of these companies are making sincere, long-term commitments to a given area or group.

In the Aveda case, they wanted exclusive access to the product, and this was stipulated in their contract with the Yawanawá in exchange for 5% of the proceeds derived from that particular product.

I think that while it’s important to be critical of these relationships, you also need to realize that, in many cases, these companies represent the only chance for a cash income from sustainable, traditional activities.

Chico Ginú: I went to a meeting in Panama in November where some Indigenous groups were represented by anthropologists. I thought this was very strange, because, though the expertise of social scientists and biologists and the like is extremely important in this context, how can they possibly claim to represent Indigenous people?

BB: Yes, this is a problem for two reasons. First is the problem of allocation of resources — more time and money needs to be spent actually in the communities so that Indigenous people can be empowered to speak for themselves. Second, there is the ethical problem of trying to speak for someone else. I have seen instances where researchers get too wrapped up with people they are working with, and lose their scientific distance and presume to speak for these people.

Sharon Flynn: I’ve been in conservation for three years, and I think there’s a huge amount of waste and inefficiency that goes on. Nevertheless, all of these organizations have the same goals, in the sense of creating the conditions for positive change. Though each group has its own flavor and location across the political spectrum, the degree to which they are all working towards the same thing creates a situation in which there is the potential for cooperation. Cooperation at the organizational level is often cumbersome and unproductive because of a competition over resources, but at the staff level it can be extremely effective. Networking on the level of you and I speaking to one another every once in a while can go a long way towards eliminating redundancy and increasing effectiveness.
Knowledge and Information Resources for Local and Traditional Natural Resource Users: Networking and Conferencing Systems, the Internet, Online Services, Libraries, and Information Centers

Richard Labelle
Global Information Analysis

ABSTRACT
Global Computer Mediated Communications networks are growing rapidly, and are important tools for communication and the dissemination of information by local groups. Though a wide range of technologies is available to users in developed countries, connectivity is limited in much of the world. Various UN initiatives, in collaboration with local NGOs, are seeking to improve this situation so as to facilitate communication among traditional resource users. The human network and demand for these technologies already exists, and the task is to overcome cost and regulatory barriers to the flow of information.

I would like to start by thanking the ISTF and the Yale School of Forestry and Environmental Studies for inviting me, and Greg Dicum, who discovered me using the technology we’ll be talking about. He was using the gopher and discovered that I had participated as an advisor in a workshop that the United Nations Development Programme (UNDP) had called together in September 1992. That workshop dealt with a project that is the basis of a lot of the work I’ve been doing recently, The Sustainable Development Networking Program (SDNP), which had been an idea of Mr. Maurice Strong. As a member of the Vultman Commission in 1989, he proposed that, given the global knowledge base, and given some of the technologies for Computer Mediated Communications, it might be possible to assist in the development process by providing information access to key decision makers involved in making the concept of sustainable development a reality. Many of the lessons and points that I will relate today come from our practical experiences at SDNP in attempting to implement this idea.

COMPUTER MEDIATED COMMUNICATIONS AND DEVELOPMENT
The real objective of my talk today is to discuss the role of Computer Mediated Communications (CMC) technologies and to talk about how they would be useful in the context of building the capacity of Indigenous peoples to move towards their vision of sustainable development. As well, I think it is pertinent to talk about the use of these technologies for another very important reason, which I have not heard mentioned yet. This is the whole question of the Decade of Indigenous Peoples, and the commitment that the United Nations and the International Community made to Indig-
enous people as a result of Chapter 26 of Agenda 21, which deals with the needs of Indigenous people to achieve sustainable development.

In September 1992, the UNDP had the task of taking Agenda 21, the outcome of the United Nations Conference on Environment and Development (UNCED), and putting it into practice. Agenda 21 is a plan of action. It addresses the involvement of stakeholders at all levels in planning and policy making for sustainable development, and highlights the role and importance of various groups, including Indigenous people and traditional resource users. Chapter 40 of Agenda 21, the information chapter, noted the need to help bridge the data gap separating the North and the South, and the need to facilitate access to information for decision making. The goal of implementation is to use these technologies to assist this process, bearing in mind that sustainable development really is based on participatory processes: involvement of stakeholders and the creation of appropriate mechanisms for sharing information at all levels and across all sectors of society.

First, we will look at some of the specific technologies related to the use of Computer Mediated Communications as tools for enhancing interaction. I would like to make it clear that the technologies we are promoting when we talk about CMC are all management tools. They are not ends in themselves and we are not promoting the creation of infrastructure. We are not talking about creating dams or building fiber-optic networks. We are talking about the use of these technologies as tools to help bridge the gap between those who know and those who do not, or those who have something to say and those who are seeking information.

TECHNOLOGIES AND TOOLS USED FOR COMPUTER MEDIATED COMMUNICATIONS

CMC is the use of telecommunications media to allow computers to communicate with one another. Through CMC, and the technologies discussed below, it is estimated that over 35 million people communicate with one another over the Internet, using over 3 million host computers (Internet Society, 1994).

Various technologies are used for CMC. The following are examples of relevant communications technologies for those working toward sustainable development:

- Store and forward computer messaging systems based on the Unix to Unix Copy Program (UUCP) or FidoNet technologies
• Bulletin Board Systems (BBS)
• The Internet
• Commercial online services such as CompuServe, America Online, and others

The most important technologies for point-to-point communication — electronic mail (e-mail) in a fashion compatible with the Internet — are FidoNet and the Unix to Unix Copy Program (UUCP). With a computer, a modem and, most importantly, a telephone line that can be linked to the local urban grid, you can access the Internet for electronic mail purposes. You can run this with local expertise, assuming you’re using just one telephone line. Unix systems, which have interactive capabilities, require a systems engineer. There is a significant jump in building the capacity to run and maintain this type of operation.

Also important are satellite radio systems other than the commercial satellite systems. These are low-earth orbiting satellites that permit full use of packet radio technology and allow users to circumvent the telephone network, which can be extremely useful. You may be familiar with HealthNet, for example, a network that links medical practitioners around the world under circumstances where telephone communications are virtually impossible.

FIDOINET

FidoNet is a computer communications software that permits e-mail to be bundled and sent over telephone lines. Compression and optimization technologies are used to speed transmission so that 300 to 500 pages of messages can be sent in 5 or 6 minutes using high speed modems. FidoNet nodes are usually linked to a Bulletin Board System (BBS) and some FidoNet nodes are also linked to the Internet via UUCP. FidoNet is well established — many NGOs use it and USAID uses it for the Famine Early Warning System — and there are over 14,000 FidoNet nodes around the world (Mikelsons 1992).

UNIX TO UNIX COPY PROGRAM (UUCP)

UUCP is a part of the Unix operating system, although UUCP can operate alone and is not UNIX dependent. UUCP can also run on non-UNIX computers. UUCP uses file transfer protocols that are becoming as efficient as FidoNet. Hardware requirements are minimal: only a computer and a modem are required to provide connectivity (UNDP/IDRC 1993). UUCP supports direct connections to the Internet, through about 20,000 nodes around the world. Like FidoNet, most UUCP nodes are connected to a BBS, in this case.

With a computer, a modem and, most importantly, a telephone line that can be linked to the local urban grid, you can access the Internet.
USENET, a public domain BBS also accessible through the Internet. There are over 7,000 conferences in the USENET BBS.

BULLETIN BOARD SYSTEMS (BBS)

BBSs are computer files that are available by telephoning a remote computer (logging in) using telecommunications software. Email is also a feature of BBSs, allowing BBS users to contribute to the conferences and also to send messages to one another and to others using FidoNet, UUCP or the Internet. An estimated 30,000 to 100,000 BBSs exist in North America alone, and a growing number are directly linked to the Internet. They are important sources of local information.

BBSs are an important supplement to the Internet because they provide free and local access to local news and information. This applies in North America as well as in other parts of the world. Linked to the FidoNet and UUCP technologies, they can also provide global connectivity.

THE INTERNET

The Internet is a family of networks using the TCP/IP protocol to exchange data (Krol 1993). The Internet is important because it is ubiquitous and because of its large and rapidly growing number of users: over 1 million new hosts or computers were added to the Internet in the first six months of 1994, an increase of 81% over the previous year (Internet Society 1994). The Internet has been predominantly non-commercial, but this is changing rapidly as commercial applications emerge (Taylor 1994; Resnick and Taylor 1994).

Internet applications include e-mail, remote login to other CPUs over the network (telnet), file transfer between computers (FTP), and various browsing and search tools such as gopher, Wide-Area Information Servers (WAIS), and the World Wide Web (WWW).

There are several networks that are relevant in the family of networks we call the Internet. We will go into more detail in considering one family of networks, the Association of Progressive Communications, in a moment. When the Internet Society talks about the number of countries connected, they’re really talking about this type of access — high-end, interactive access to the Internet. In fact, anyone who has a phone, no matter where they may be, has access to the Internet, unless security services have set up systems to capture and prevent transmission of fax or modem messages, as is the case in some countries.
COMMERCIAL ONLINE SERVICES

CompuServe, America Online, Prodigy Services, GEnie, Delphi, and others are commercial providers of computerized information services available for a subscription and usage fee. These commercial online services provide BBS services and access to a wide array of databases, but at a price. CompuServe offers access to over 1,700 databases. The average household income of the predominantly male (80%) users of CompuServe in the USA is $92,200 (Resnick and Taylor 1994). The commercial services could be relevant to local and traditional users as outlets for products and services for a very well-heeled, leisure-oriented and increasingly international clientele. There could also be a significant market opportunity for ecotourism and for a variety of cultural and learning exchanges.

These databases are extremely useful and they are very profitable to their producers because Commercial America uses them to maintain competitive advantage and to remain aware. They are very good sources of information.

Figure 1: Internet Global Infrastructure Diffusion
(Rutkowski, 1994)
Unfortunately, these services are not, generally speaking, available in the developing world, although I have seen some exceptions. Interestingly enough, access to Dialog, which is expensive, was supported in Tehran by the Islamic Republic of Iran to assist the research community. They had a host of computers with modems linked to the AT&T network to gain access to Dialog in order to answer queries that their scientists could not deal with because they had limited access to information, for reasons we all know.

**THE INFORMATION GAP**

Figure 1 is a measure of the data or information gap separating developing from so-called developed countries. The line shows a direct relationship between Gross National Product and connectivity, as measured by the number of hosts in a country. Countries are identified by their two-letter ISO codes. The country at the top right is the USA. The general tendency is that none of the African countries have any hosts at all, with the exception of Tunisia, Egypt, and South Africa. Also very few of the Muslim countries have interactive access. The country at the bottom of the graph at the $100 billion GNP level is Saudi Arabia. People there do have access, but on a per capita basis it is not very well distributed.

Out of about 3.2 million Internet hosts, there are over 10,000 hosts per country in the West, including Japan, and over 1.2 million in the USA alone. Countries with more than 1,000 hosts are still predominantly in the industrialized world, but countries of Latin America and Central and Eastern Europe are also represented. Malaysia and Thailand also have over 1,000 hosts each.

In a very few countries of the developing world, the Internet is openly accessible and not too expensive. The Philippines have recently developed PhilNet, a locally accessible Internet backbone. In Indonesia, on the other hand, access is prohibitively expensive. Even the University of Jakarta relies on international direct dialing to an Internet service provider in the USA using the UUCP protocol. Pakistan does not have direct access, but several BBS-type services exist, with UUCP links to the USA. One of these is the Sustainable Development Networking Program (SDNP) Pakistan, a project funded by UNDP as a follow-up to UNCED (Daudpota 1994).

**THE ASSOCIATION OF PROGRESSIVE COMMUNICATIONS**

Within the family of networks that are in the Internet, and that provide gateways that are compatible with the Internet protocol, one of the more relevant is the family of networks known as the Associa-
tion of Progressive Communications (APC). The APC is an advocacy network that operates on a not-for-profit basis, but that promotes the creation of these networks on a business planning basis. If you want to set up an APC node in a country, you must have a business plan that demonstrates cost recovery and charges your clients. On top of that, you have to participate in the global APC and provide, at least at the time this information was obtained, about a year and a half ago, a minimum of $5,000 a year in subscription fees, up to $25,000 depending on the number of users you have (APC 1993).

NGOs use CMC throughout the developing world, often at a local level. The APC has been in the forefront of efforts to help local

Figure 2: The Association for Progressive Communications (APC) Nodes and Connected Systems, as of April 1992 (International Institute for Sustainable Development, 1993)
users develop the capacity to use CMC. Associates of APC and national affiliates have developed FidoNet or UUCP-based messaging systems for Africa (GreenNet), Asia and the Pacific (Pactok), and Cuba (Web).

There are two major nodes in the APC family of networks. The first, the Institute for Global Communications (IGC), is the hub for many other networks around the Americas, with direct connections to the Internet. In Canada, we have the Web, which provides access via UUCP to the whole of Cuba. Cuban electronic mail goes through the Web and then through the Web to the Internet. IGC is the gateway for a variety of different networks, including, for the South Pacific/Oceania region, Pegasus from Australia; Equinex in Ecuador; Huracan in Costa Rica; Nicaragua in Nicaragua; Chasque in Uruguay; BolNet in Bolivia; and Alternex in Brazil with IBASE, a social-action NGO based in Rio de Janeiro which has promoted the use of these technologies heavily. I presume, given the discussions concerning Brazil at this conference, that those of you who work in the Amazon are all using Alternex. They are extremely proactive and I believe Alternex has a national network system set up.

GreenNet in the UK serves as a hub for many different countries. A hub in this particular instance means that they use the UUCP/FidoNet protocol to do the following: they keep their computers on all night, and when it is cheapest to do so, in London, New York, or San Francisco, they phone the receiving node’s computer and, using telecommunications protocols to crunch up information so that the transmission is fast and cheap, they make transmissions originate from where the telecommunications costs are least (the US in particular and to some extent the UK). When you are spending five dollars a minute to transmit from the South in some countries, you do not stay on line for very long. In fact, you are never really on line — you’re exchanging files.

GreenNet provides access to Africa south of the Sahara, to all of those countries which did not figure in the Internet connectivity list. It provides e-mail and a subset of conferences to a whole variety of these networks, including, for example, the Environmental Liaison Center International (ELCI), in Nairobi, which serves as a link to a variety of other NGOs and related organizations in and around Kenya.

Pegasus, in Australia, provides UUCP/FidoNet connectivity through Pactok to the South Pacific and to many other countries in the region. In many countries, this technology is the only way activists are hooked into what is happening. It is the only way they stay aware — assuming, again, that the security services have not blocked
off transmissions, because many of them have sophisticated tools to detect modem communications.

OTHER NETWORKS FOR LOCAL AND TRADITIONAL RESOURCE USERS

Local and traditional resource users, including Indigenous peoples and marginalized groups in general, have mobilized. Some are using CMC. Thanks to computer networking advocates such as the APC, GeoNet and others (see IISD 1992), there are fora in which to exchange experiences and organizations from which to seek help. APC maintains over 20 electronic conference topics related to Indigenous people, for example. USENET newsgroups and Internet mailing lists also focus on Indigenous people and, by extension, on local and traditional resource users. In addition to the APC networks discussed previously, a number of other initiatives are currently operational around the world.

In Pakistan, the national branch of the World Conservation Union (IUCN), is hosting the UNDP Sustainable Development Networking Program (SDNP). The SDNP has established a BBS and is linking this to local libraries. SDNP is also developing local nodes in several cities and is promoting the creation of a national telecommunications infrastructure to support CMC. SDNP is active in over 20 countries around the world (Lankester 1994).

In Africa, Environment and Development Action in the Third World (ENDA) operates a CMC node in Senegal. EL Taller operates a small node in Tunis. ELCI operates a BBS linked to FidoNet. The initiatives of the International Development Research Center (IDRC) include efforts to encourage use of CMC. IDRC collaborates with the Pan-African Development Information System (PADIS) of the Economic Commission for Africa in the Capacity Building for Electronic Communications for Africa (CABECA) project (PADIS 1993).

In most countries of Latin America, Internet access is available through universities. UNDP SDNP also operates in several countries, including Nicaragua, Chile, Bolivia, Honduras and Costa Rica.

The South Pacific has one of the most interesting networks. Peacesat is a satellite supported by the USA and made available to the 22 Small Island Developing States and territories of the region to improve telecommunications. Thirty-four ground stations allow voice level communications and full Internet access at 9.6 Kilobits per second. The Peacesat satellite complements the Pactok FidoNet network as well as an Internet connection through the University of Fiji in Suva.

In many countries, this technology is the only way activists are hooked into what is happening. It is the only way they stay aware — assuming, again, that the security services have not blocked off transmissions, because many of them have sophisticated tools to detect modem communications.
In the South Pacific, distance and the small size and isolation of the countries means that traditional and local concerns predomi­nate. Peacesat voice sessions are in local languages and dialects as well as in English. In the South Pacific, there is a real opportunity to use CMC at the local community level.

**TRENDS IN CMC USE AND DIFFUSION**

The present tendency in North America and Western Europe is for individuals using BBS technology or the Internet, and especially the World Wide Web (WWW) Internet application, to become globally accessible and highly specialized centers of information and expertise — traders in a variety of goods and services.

Agenda 21 puts special groups in the forefront of action for sustainable development. In order to seize the opportunity, these groups need to collaborate and communicate. Networking with individuals around the world is now possible for most any interest group, and many are doing so.

The technology is not an impediment, as experience using CMC in Africa and in many other parts of the developing world has demonstrated (Mikelsons 1992).

Factors promoting CMC diffusion include (modified from Rutkowski 1994):

- minimal or nonexistent regulatory constraints
- availability of leased lines and local access lines on a cost basis
- availability of reasonably priced computers
- competition from facility providers
- local expertise
- demand — a strong human network

The most important of these, in our experience, are the first two and the last one.

**AVAILABILITY**

One of the main constraints that separates the level of service we enjoy in North America from the reality in many developing countries is that in many cases access to the Internet is provided by a monopoly. Many of us in the North were familiarized with the Internet as students; we got it through our university computer centers, as part of the registration process. That is not the case in many of the developing countries. In fact there has been resistance at two levels: political, for some of the reasons I have indicated, and economic. The pulse and telecommunications authorities are the
ones that maintain the leased-line link through which everything electronic, whether privileged (bank and corporate networks) or public flows. The Internet flows using packet switching technologies, and the authorities do not like sharing what they have and they charge a premium for it.

For example, $60,000 a year to get a leased-line connection is a good price, for maybe 9.6 kilobaud to perhaps a 64 KBPS (kilobauds per second) pipe, for Internet connectivity. It costs $200,000 a month for the Polish Academic Research Network, which has 50,000 users, to get a 2.1 megabit per second line. In Fiji, to get a 2400 baud dedicated line from Australia, it costs the department of Computer Studies at the University of the South Pacific $33,000 a year. 2.4 kilobaud doesn’t allow for very much interactive access, so all the high-end technology really does not exist under those circumstances.

You might as well sign onto CompuServe in these countries, because with the commercial services there is more competition and there are more users. Though their rates will be expensive, you will get access to the Internet. In some countries, the service provider in the US will establish a reverse charge account. But the other point, of course, is that in many countries, charging is based on not just your annual subscription fee, but it is a per usage time fee and a per unit packet fee. You pay for every packet that goes down the line or that you receive, so it becomes very expensive.

Under these conditions, store and forward systems become cost-effective. Where these impediments exist, NGOs and others have developed local BBSs. International access is based on UUCP and FidoNet. In Latin America, UUCP and direct access to the Internet is becoming the norm. In Asia and the Pacific, the Pactok network uses FidoNet (Pactok Project 1993), but many other users also rely on UUCP.

Availability of computers is also a concern — most of you will be familiar with this if you work at the local community level. It is certainly a concern in many of the developing countries. In this regard, and in the area of establishing local expertise, the NGO community is an invaluable partner.
THE HUMAN NETWORK, OFFICIAL SUPPORT, AND NGOS

The existence of a strong human network, in which groups sharing common concerns are prepared to collaborate to meet shared objectives, is critical. This requires leadership, entrepreneurship, and good management. In the end, people make a network, and technology facilitates its operation. Today more than ever, these technologies can and are having a major impact. Successful networking of various stakeholder groups during and since the United Nations Conference on Environment and Development has shown that open sharing of information and the use of CMC can have a beneficial influence on people, policies, plans, and actions for sustainable development.

We are working through the UN, which had worked exclusively through official agencies and organizations but is now changing. The UN is now making it perfectly clear that if governments do not want to involve their counterparts in the NGO community, then their initiatives will not be funded by the UN. For example, in Tunisia, there are 6000 NGOs, but the government did not want them to join us at the table due to security issues related to the fact that the country happens to be next to Algeria. We could understand their point of view, but we were a little concerned about making an investment where we would not have stakeholder participation. Official support is important and we can’t really work around it, but we can try negotiating. Bearing in mind that these countries did sign the Rio accords, and those accords are specific about multi-stakeholder processes and access to information, we are trying to leverage participation through the UNDP resident representatives. Sometimes we have to prod to get this to happen. Eventually, some Tunisian NGOs gained access to the national Internet network, Le Réseau National de la Recherche et de la Technologie, because of UNDP SDNP pressure.

To have local information and exchanges, there has to be something to exchange. Generally speaking, there is a great interest in making networks available. This is a market for the service — people are there to subscribe. In our feasibility studies, we spend a fair amount of time looking for spark plugs, often from the NGO community. Individuals and organizations can take over this initiative and make it happen. We know that if we give a project to the government, it is going to die. Better still is an existing initiative that we can build and enhance through this effort. We do not want to start creating things anew if we can build on what already exists.
THE INFORMATION CULTURE
The Internet is a Western phenomenon. During the negotiations that took place on the Information Chapter of Agenda 21 at PrepCom IV in New York, several developing countries objected to the first sentence proposed at the time: “Everyone is a decision maker for sustainable development.” The representative of one country stated that the government is the only decision-maker. The language was changed, and now it reads: “Everyone is a user and provider of information considered in the broad sense.”

Many countries have reservations about the freedom of access to information that individuals and non-governmental organizations enjoy on the Internet. Some USENET newsgroups deal with issues not openly discussed in many societies. Alt.sex and alt.sex.stories are two of the most popular newsgroups on the Internet (DEC Network Systems Laboratory 1993). In the newly refurbished, modern, and well-equipped computer science department in one Muslim country, USENET Newsgroups are kept offline for this reason. USENET News is not available as a result, and the university does not have direct Internet access.

In Africa, the UNDP Resident Representative in one West African country had his own doubts about promoting the use of CMC and charging users: “The oral tradition will never allow a place for such technologies. Getting people to pay for information will never be possible in Africa.”

In China, a Hong Kong-based journalist and a Chinese bureaucrat were imprisoned because they reported on the country’s gold reserves, a state secret. They are serving sentences of several years in prison as a result. Information that would be in the public domain in the West is privileged in some countries.

The Information Culture in the West clashes with the value systems prevalent in many parts of the world. However, even in these situations, access to the Internet is now becoming an issue as countries jockey for advantage and markets around the world open up. The creation of the World Trade Organization (WTO) will lead to more competition. Using the Internet and related technologies is essential for competitive advantage.

LESSONS LEARNED
In summary, the SDNP has been operating for over two and a half years with help from UNDP, IDRC of Canada, and others. The SDNP experience has revealed several factors that need to be taken into consideration when establishing CMC activities that link different stakeholder groups:

The Information Culture in the West clashes with the value systems prevalent in many parts of the world. However, even in these situations, access to the Internet is now becoming an issue.
• local capacity to develop a node
• official support and incentive
• willingness of different stakeholder groups to work together
• a need to have local information and exchanges
• a market for the service
• an active NGO community to promote and run the service
• existing initiatives
• donor and/or government interest in catalyzing action
• suitability to local languages and dialects

POSSIBLE NEXT STEPS

For sustainable development to become a reality, there will be a need to agree on plans and policies, and, more importantly, a need to bring about attitudinal and behavioral changes. CMC and related information technologies are tools that can help stakeholders interact and collaborate so that all of this can take place. These technologies may have a role in enhancing the capacity of traditional and local resource users to become self-sufficient by helping them market products and services and acquire resources and support to help them meet their own needs and voice their views. For instance, ecotourism, negotiating agreements with commercial interests, direct marketing, developing and acquiring “Indigenous” or local knowledge resources and developing a strong presence and advocacy using CMC are options that local and traditional resource users may wish to consider.

Local and traditional resource users have particular characteristics. They are usually poor, without access to significant financial resources. Some are beyond even the cash economy, let alone telecommunications. With fewer rights than others, they are more open to exploitation, and in some cases, are disenfranchised or persecuted in one way or another.

Local and traditional resource users need help to establish their rights over property and other resources that contributed in the past to their survival. Among these are the knowledge resources that they have developed.

The year 1995 marks the beginning of the “Decade of the World’s Indigenous People 1995 - 2005.” This is an opportunity to review ongoing activities, consolidate efforts and collaborate in creating a global network to support and inform local and traditional resource users and their allies. This could be done with catalytic support from the international community.

The blueprint already exists: a recent conference on Small Island Developing States (SIDS) sponsored by the United Nations, led to
the proposal of SIDSNet, a global information sharing network for SIDS (UN, 1994). The SIDSNet proposal could be adapted to the special needs of local and traditional resources users. SIDSNet could be the basis of a funding proposal for such a global network.

I’d like to thank you very much for this opportunity. Thank you.

REFERENCES


Daudpota, I. 1994. Personal communication. (Daudpota is the Coordinator of the Sustainable Development Networking Program in Pakistan)

DEC Network Systems Laboratory. 1993. Top 40 newsgroups in order by traffic volume (Oct 93). DEC Networks Systems Laboratory, Palo Alto. reid@torrey.pa.dec.com


Taylor, D. 1994. The Internet Mall: Shopping the Information Highway. A list of commercial services available via the Internet. Intuitive Systems. Usenet posting. (tayloy@netcom.com)
Richard Labelle
A biologist by training, with a MSc in Plant Physiology and a diploma in Resource Management, Labelle has worked for Parks Canada, and for the International Center for Research in Agroforestry (ICRAF) in Nairobi where he spent 9 years as head of the Information and Documentation Programme. His consulting practice concentrates on enterprise-wide planning for sustainable development, and advising developing countries on the use of appropriate information technologies, including the Internet. He has been extensively involved with the UNDP Sustainable Development Networking Program (SDNP). He has also undertaken consulting work for the Regional Environmental Center for Central and Eastern Europe in Budapest and the International Development Research Center (IDRC). He was the leader of the UNDP team that proposed SIDSNet, the Small Island Developing States Information Network, to the General Assembly of the United Nations.
Richard Labelle Working Group

Participants in this session discussed the introduction and use of computer-mediated communications in developing countries. Key issues that arose during the talk were cooperation, limitations to applicability in rural areas, and access.

COOPERATION

Working through CMC technologies, more can be accomplished in less time with the help of people around the world who have information needed to resolve particular problems. According to Richard Labelle, cooperation should be the main reason for becoming part of the world communications network. He gave as an example the success in dealing quickly with a toxic waste spill in Pakistan. Through e-mail with the international community, workers were able to deal effectively with containment, cleanup, and environmental and health issues associated with the spill.

LIMITATIONS TO APPLICABILITY IN RURAL AREAS

Many participants questioned the usefulness of CMCs for rural community groups because of considerable barriers to implementation, including infrastructure, training, and cost. One option Labelle suggested for rural areas was packet radio. The lack of money, power, and technical capacity in rural communities, however, raised questions about the practicality of even this technology. One example of this technology working under these conditions is HealthNet in Zambia, which links rural areas to each other and to an urban hospital where doctors are able to help with prescriptions and diagnoses. People are saved agonizing trips to the city, and doctors and nurses in rural areas are learning from their colleagues in Lusaka.

ACCESS

Access to this level of communications is difficult in developing countries because the internal communications infrastructure is lacking or poorly maintained, governments are particular about who their citizens are talking to and what information they have access to, and because high technology is expensive.

The usual pattern to date has been for a large NGO or international development agency (such as CARE or USAID) to sponsor a community or local NGO. Often, computers and communications technology are kept in urban areas, where phone lines are better
maintained and access to maintenance is better.

Language is also a barrier to access. The general rule has been that to communicate on the global Internet, one must speak English. Electronic translators have a poor track record, yet CMCs are useful only if what is communicated can be assimilated. While local languages are being used on some BBSs, global connectivity requires some conduit into English.

The following excerpts expand on some of these topics.

Richard Labelle: In rural areas, access is practically nonexistent. Where there is access, it is usually associated with the presence of NGOs that have outside help. For example, CARE has had a history of supporting various groups in conserving environmental and agricultural knowledge. While the groups that they work with in the countryside don’t have direct access to these technologies, the regional offices of CARE have computers with global linkages through their office in Nairobi. So the end user — the small scale farmer — is not online. Nowhere.

There is hardly any direct use of computer technology by people living at the “local” level, whatever that means, and it’s not likely to happen for some time.

In the Philippines, which has a more open approach to the use of information, the government has funded an Internet network, and instead of charging the exorbitant rates that are the norm in the rest of South East Asia, the Filipinos have agreed that this is a good thing for development and that they will encourage access to the Internet at a subsidized rate. This network is now being used by the School of Forestry at the University of Los Baños to link villages using agroforestry so as to be able to share experiences and coordinate research.

Sebastián Poot: What can a group such as Yum Balam do to become a part of a network such as the APC? We are beginning to think about setting up a node for the Yucatán, but we are not certain about the steps that are involved in doing this — information technologies are something new for us.

RL: I would suggest talking to other NGOs and initiatives in the Yucatán and Mexico City, including La Neta, an electronic network in Mexico City.

Rachel Byard, Yale F&ES: What are the options if there aren’t any phone lines?

RL: Access is still not out of the question. The options are satellite systems, and the most cost-effective is using a technology known as packet radio. Packet radio uses a micromodem and a radio
transmitter — $600 will pay for this setup. There is one satellite (so far) owned by the Institute of Development Studies (IDS) at the University of Sussex, in the UK. IDS, with the assistance of Volunteers in Technical Assistance (VITA), based in Arlington, uses this technology to link every point on the earth. They do this in the following fashion: the satellite flies between 100 and 300 km above the surface of the earth, so unlike the geostationary commercial satellites, this satellite is moving very fast and covers every part of the world 6 to 10 times a day, but only for 15 to 20 minute windows, which can be extended with a directional antenna. During these times, you can transmit to this satellite at 9.6 Kbps. There is not only no need for a telephone, but if you have solar panels, there is also no need for outside electricity.

What does this permit access to? Well, it can carry your information and download it to the IDS in the UK or elsewhere, and then your information goes through a server and is on the Internet. When you get a response, these are uploaded to the satellite and then downloaded to you when the satellite is in your area again. In the field, this means a delay of one or two days between sending a message and getting an answer.

James Jiler, Moderator, Yale F&ES: Since we have to end in about two minutes, I’d just like to ask you to recommend a single, comprehensive source of information on this technology and its use as it is related to development concerns.

RL: I would suggest the upcoming second edition of the Sourcebook on Sustainable Development, which will update the 1992 edition. You can get it from the International Institute for Sustainable Development (IISD).

The IISD can be contacted at:

The International Institute for Sustainable Development
161 Portage Avenue East,
6th floor
Winnipeg, Manitoba,
Canada R3B 0Y4

Tel: 1-204-958-7700
Fax: 1-204-958-7710
E-mail: reception@iisdpost.iisd.ca
WWW: http://iisd1.iisd.ca/

The Sourcebook on Sustainable Development, 1992:
ISBN 1-895536-04-9
Indigenous Land Use Mapping in Central America

Mac Chapin
Center for the Support of Native Lands

ABSTRACT
Projects undertaken by Native Lands to assist Central American Indigenous groups in mapping their land use have resulted in very accurate maps based on the work of Indigenous surveyors and their communities. These maps serve as an important tool in the struggle to secure Indigenous land rights in areas that were previously seen as empty. As well, the mapping effort itself has served to foster community organization and cooperation in seeking to press claims. Continued Indigenous management of these areas is critical in conserving the last remaining forested areas in Central America.

INTRODUCTION

In 1987, I began working with Cultural Survival on a program to assist the Indigenous peoples of Central America. We concentrated our efforts along the Caribbean coastal slope, for this has traditionally been the neglected region of Central America.

The first thing we found out about the situation of the Indigenous people of the lowland areas, where the last remaining forests are found, is that the people are not well known. In Central America as a whole, there are approximately 30 million people. Of these, 6 to 6.5 million are Indigenous, spread out among 43 distinct ethnic and linguistic groups, yet, even within their own countries, they are not well known. Several years ago, someone from a publishing house phoned me and asked how to spell the word “Pech.” The Pech are an Indigenous group with a population of about 2,000 people living in northern Honduras. He was editing a book about Honduras and before calling me he had contacted the Honduran embassy to ask them. No one in the embassy had ever even heard of the Pech.

This situation is generally true throughout the Caribbean region of Central America, even among groups that are known by name, such as the Miskito of Honduras and Nicaragua, and the Kuna of Panama. While we know what they look like — Kuna women in particular are quite visible with their mola blouses — and have heard some stories about them, it must be said that we know virtually nothing about what they think, and consequently we have little idea of who they really are or how they go about organizing their lives. For this reason, we began visiting them and spending some time among them to find out what issues they were concerned with.

In 1991, we began working on a map of the region with the National Geographic Society, and the following year we published The Coexistence of Indigenous Peoples and the Natural Environment in Central America, a map supplement to the journal Research and...
**Exploration.** This map shows in considerable detail the relative distributions of remaining forests and Indigenous peoples.

We can see that the majority of Central America’s Indians live in two discrete and difficult-to-reach areas: the volcanic highlands of Guatemala and the densely forested Caribbean coastal plain, which stretches from Belize down through Panama to the Colombian border. During the time of Conquest and after, the Indians fled into these refuge areas to maintain their autonomy and ways of life. Over the centuries, they were gradually pushed back and displaced, forced into ever-tighter circles across the densely populated highlands or still deeper into the humid rainforests of the Caribbean littoral. These hideouts had remained relatively inviolate to outside incursion until only recently, when the forces set loose by national and international market economies combined with the impact of new technologies to mount an assault against the region’s remaining base of untouched natural resources.

Now the last stands of tropical forest, and the lives of the Indians living inside them, are threatened by advancing loggers, cattle ranchers, and landless peasants. And the pace of destruction has accelerated during the last 50 years. It is estimated that fully two thirds of the original forest cover has been cut back and burned off since 1940.

Clearly, the most pressing problem facing Indigenous peoples of this region is the invasion and destruction of their land and natural resources. But while this became clear to us, it was difficult to figure out what to do about it or where to start. In one area, the Mosquitia of Honduras and Nicaragua, we realized that while the local inhabitants had a fairly clear idea of what was happening to them, this understanding was atomized at the level of the community. People in one community knew the names of non-Indian peasants who had moved into their lands; they had business deals — generally illegal — with loggers, and some worked as peons for large cattle ranchers who had recently arrived. By contrast, they had only a fragmentary understanding of what was occurring in other villages, and they had little interest in their problems: “If they have problems, that’s their business.”

At the time, we had three priority areas in which we were working: the Mosquitia region of Honduras and Nicaragua, inhabited by the Garífuna, Miskito, Pech, and Tawahka peoples; the Talamanca/La Amistad area along the Atlantic coast of Costa Rica and Panama, with the Cabécar, Bribri and Teribe peoples; and eastern Panama, including the Kuna areas of Kuna Yala, Madungandi, Wargandi, and Púcuru and Paya, and the Emberá and Wounaan region of the Darién. All three of these areas are threatened; all needed help.
Our difficulties resided in the fact that the inhabitants of these areas did not have a global vision of what was occurring, and it was consequently impossible to devise initiatives covering an entire region. This was when we hit on the notion of carrying out a mapping project.

DEVISING A STRATEGY

The first area we worked in was the Mosquitia of Honduras. We had been talking with several Honduran organizations about what was at the time an undefined project that would serve to focus peoples’ attention on the land issue. These discussions went on for more than a year. Finally, in 1992 the support group MOPAWI (Moskitia Pawisa — Development of the Mosquitia) and the Miskito federation MASTA (Moskitia Asla Takanka — Unity of the Mosquitia) combined forces to carry out a participatory land use mapping project in which the Indigenous peoples would gather the bulk of the information (see *Tierras Indígenas de la Mosquitia Hondureña 1992: Zonas de Subsisténcia*, MOPAWI and MASTA).

The following year, in 1993, we supported a similar project in the Darién of Panama. This was a collaborative effort of the Indigenous General Congresses of the Emberá, Wounaan, and Kuna Peoples and the Panamanian support group the Centro de Estudios y Acción Social Panameño (CEASPA). The result was *Tierras Indígenas del Darién 1993: Zonas de Subsisténcia* (Emberá, Wounaan, and Kuna General Congresses and CEASPA).

In this talk I would like to use examples from the mapping project in Panama as a way of illuminating the general lines of the methodology used.

THE DARIÉN

The Darién region of Panama, with a total land area of 16,803 square kilometers and approximately 45,000 people, is the most sparsely populated and least known area of the country. It contains the largest remaining chunk of intact forest and serves as a natural barrier separating Central from South America. Indeed, since the 1970s, it has been designated a buffer zone protecting North America from the spread of hoof-and-mouth disease from Colombia, where it has been endemic for decades. The only uncompleted stretch of the Pan-American Highway running from Alaska down to southern Argentina is found between the Panamanian town of Yaviza and the Colombian border, a distance of just over 100 kilometers.

Thirty years ago, all of eastern Panama — containing Darién
and part of Panamá Provinces — was a region of largely intact tropical rainforest inhabited almost exclusively by three Indigenous groups: the Emberá, the Wounaan, and the Kuna, as well as small colonies of *darienitas*, the descendents of escaped African slaves. Today, it has become a battleground on which the native inhabitants are struggling to stem the incursion of loggers, cattle ranchers, land speculators, and landless colonists from Panama’s overcrowded interior provinces. Since the opening up of the region in the mid-1970s through the construction of the Bayano Hydroelectric Dam and the extension of the Pan American Highway as far as Yaviza, the lush forests have been rapidly disappearing, together with the subsistence base of the local people. Now the region is faced with a new menace as plans are made to complete the final link in the Highway, joining the North and South American continents for the first time.

**LAND USE MAPPING**

We held discussions with Indian leaders over a period of more than a year before the mapping proper was begun. We discussed the purpose of the project, potential benefits to the local communities, and the methodology to be used in the field. Over the years, the Indian groups have heard considerable talk about projects in their region but they have been invariably disappointed. We had long talks; they returned to their people and talked some more; we talked again, answering their questions. We had joint meetings with CEASPA. Finally their suspicions were overcome and we all decided to move forward.

In May 1993, we initiated work in the field. We assembled a team of cartographers and 22 Indigenous “surveyors” from communities in the region to compile maps detailing the physical features as well as the land use patterns of the local communities. Each surveyor had responsibility for a zone encompassing between three and six communities, which amounted to a manageable range for a single person to cover. In this way, all of the territory inhabited and exploited by the Indigenous peoples of the Darién was covered.

The mapping was carried out through a series of three workshops. The first was held in the Emberá community of Arimae, where Andrew Leake (the coordinator of the mapping project in the Mosquitia), Nicanor Gonzalez of Native Lands, and three Indigenous coordinators — Genaro Pacheco and Facundo Sanapí, both Emberás, and Gerald Hernández, a Kuna — met with the surveyors, who had been selected by the Indigenous leaders of their respective groups. Together, they prepared two questionnaires, one dealing with the use of natural resources and the other to ascertain the population of the region. The surveyors tested their questionnaires
in the community during the evenings so they would be adjusted to
the realities of the region. In similar fashion, they roleplayed the
explanations they would give to villagers about the mapping project.

Another important component of the first workshop was train­
ing in creating hand-drawn maps with the community. Nicanor
Gonzalez, who is an architect by training and a skilled cartographer,
gave them elementary lessons in representing spatial relations, ex­
plained what they should put in and what they should leave out, and
discussed orientation according to the four cardinal points. To keep
track of information that would not fit on the maps or in the land
use questionnaires, the surveyors were given notebooks.

After a week of preparation, the surveyors set off into the field,
where they worked on census counts, questioned villagers exten­
sively, filled out their land use questionnaires, and began putting
together careful cartographic records of their zone with community
members. This was rugged work, and for this reason all of the sur­
veyors were men. They travelled by bus and by canoe, and made
their way on foot along muddy trails through the forest. They car­
rried with them a green plastic folder with a sheath of loose-leaf bond
paper, pencils, pencil sharpeners, and ball-point pens. The most
essential materials were three 60 cm x 80 cm sheets of blank manila
paper, which were used to draw the maps. Official government base
maps were not utilized, since the idea was to stimulate the surveyors
and villagers to create their own maps with their own symbols. In
the field, the manila sheets with the drawings were carried in sec­
tions of plastic tubing with rubber stoppers.

In collaboration with villagers, especially the elders, the survey­
ors made meticulous drawings of the river systems and the areas
where they hunt, fish, cut firewood, and gather materials for con­
struction, medicines, and fruit. In this fashion, the maps were built
out of the accumulated geographical knowledge of the Indians, a
type of “ethnocartography.” It must be said that some surveyors
produced better maps than others, but the best among them, crafted
with copious detail and admirable artistic talent, are works of art of
great scientific value.

There were problems of course. Some communities initially
refused to give out information; several wanted payment; a number
of the surveyors, in the beginning, were too shy to ask for complete
information and their work was spotty. Project coordinators inter­
vened in most of these cases and things were set straight. In the end,
all of the 22 surveyors worked through to the end of the project, and
all completed their jobs satisfactorily.

At the end of the fieldwork period, the surveyors returned to a
second workshop, where they worked with Peter Herlihy, a University

The surveyors made meticulous draw­
ings of the river systems and the areas
where they hunt, fish, cut firewood,
and gather materials for construction,
medicines, and fruit. In this fashion,
the maps were built out of the accu­
mulated geographical knowledge of
the Indians, a type of “ethnocartography.”
of Kansas geographer who had worked on the mapping project in Honduras and who had spent many years in the Darién, and several cartographers from the National Geographic Institute “Tommy Guardia” and the University of Panama. They worked together in intensive sessions to construct composite maps from government base maps, existing aerial photographs, and the new, community-drawn maps. The surveyors utilized the information from their questionnaires, notebooks, and the hand-drawn maps; the cartographers worked with government base maps, topographical sheets, and aerial photographs. They combined all of this information, correcting errors in the government maps, adding Indigenous names to rivers and other landforms, and plotting the extent of Indigenous land use.

After this extremely compact three week session, the surveyors journeyed back to their zones to consult community members with the draft maps, fill in gaps, confirm boundary lines, and correct errors. They then came together again for a third workshop, where they put the final touches on the maps. At the end of the process, the team of Indians and cartographers managed to produce a 1:250,000 master map of all the Indigenous territory of the Darién together with twenty-two 1:50,000 zonal maps that detail the river systems and the land use patterns.

The government and university cartographers who participated estimate that the maps produced by this process are far more accurate and detailed than anything that has ever been done in the Darién. For years, the ever-present cloud cover had impeded aerial photography of the Darién, a circumstance that made official maps of the region no more than approximations. Confidence in the Indigenous maps, however, is so high that the Instituto Geográfico recently utilized the new information, including Indigenous place names, to update the official map of the Republic of Panama.

RESULTS

The most important outcome of the maps, however, is the depiction of Indigenous land use. For the first time, it gives a clear indication of the extent of the territory utilized by the Indigenous peoples and provides a basis for understanding the way they manage their natural resources.

The maps, of course, are a good deal more than academic exercises. Beyond their scientific worth, they have an important practical value as tools to protect Indigenous lands and conserve the region’s biodiversity. Before the project began, individual Indian villagers had little sense of how loggers, cattle ranchers, and landless peasant
farmers were affecting the resources within the region as a whole. In this sense, working together on the maps provided a thorough education: it has raised their awareness of the numerous threats to their well-being and motivated them to seek collective strategies to curb the invasion of their lands. Conservationists, at the same time, can see from the maps that the areas of Indigenous land use are also areas of relatively intact forest. The implication of this is that perhaps the best way to preserve what is left is to strengthen Indigenous control over the land and work toward common conservationist goals.

One of the most important achievements of the process was the refinement of the mapping methodology, which manages to combine maximum participation of the local people with the generation of products of truly scientific value. In a wider context, the methodology is presently being adapted for work in other areas of Central America. At the present time, the Center for the Support of Native Lands is collaborating with the Indian Law Resource Center, University of California-Berkeley geographer Bernard Nietschmann, and Indigenous groups on similar mapping projects along the Miskito Coast in Nicaragua and in Toledo District of southern Belize. Because of the simplicity of the mapping methodology, it can be utilized by Indigenous people throughout the world to map their own territories.

Thank you very much.

QUESTION & ANSWER SESSION

Q: When you make maps as a means of legitimizing claims, you are also showing what exists in these territories. Might these same maps not be used against these people as a tool to aid in the theft of their resources or in helping to suppress their activities?

MC: That is a very good question. It reminds me of some of those anthropological studies that were done in Vietnam which were picked up by the CIA and used to infiltrate and undermine all of the groups out there, in the Highlands especially. One thing that the Indigenous people did not want to do was map where the gold, minerals, or sacred sites were; they said “that’s out.” With this mapping process, they can map anything they want. That’s the beauty of the system — you can use it for any purpose you want. Of course, it’s still sensitive information; what we did was find out where the resources are. We found out where they cut their timber for dugouts, and they know where the areas of mahogany are, for example.
They are telling us where their medicines are, where the game is, and so forth.

I think a hundred years ago Indians would have been crazy to produce a map like this. Today, things have changed considerably. They are trying to work within the political system and through the courts of law, and they need this kind of information to make a case. They are less afraid of revealing where their resources are so the CIA can take them than they are anxious to make a claim for legitimizing this land. And I will say that this thing was presented as a simple land use mapping project, a very technical exercise, but the Indians were interested from the beginning in using it as an aid to getting claims to the land.

Q: Since the surveyors were all male, was there a difficulty in eliciting information about land uses that are the provinces of the female members of these societies?
MC: We had men as surveyors simply because it was judged too dangerous for the women to be traveling between communities, but they had communal meetings where the women were certainly involved in discussing all of this stuff and they drew the maps together.

Q: How did you standardize the various maps produced by the surveyors; did they have compasses, for example?
MC: No, we didn’t use compasses. On the maps they didn’t put down North and South. They put down where the sun came up and where it went down. They oriented themselves idiosyncratically, according to each surveyor. A lot of them used “behind the village” and “in front of the village,” so as soon as they located it on the river, it straightened itself out. As far as distance goes, they had a certain measure they calculated, which was how long it took to walk a kilometer — they would keep these in the notebooks. It took two and a half hours to walk to X place and that’s how they figured out distances. They also wrote down exactly where in the bend of the river it was, so they used both physical and temporal determinants.

Q: When you are dealing with a territory that is a composite of communities, what happens when one group doesn’t agree with its neighbor about a boundary?
MC: In the Mosquitia and in the Darién there was an awful lot of overlap when it was the same Indigenous group. There are
Emberá villages that were all wrapped around each other, but where Emberá and Kuna communities abutted, they came up to a river and that was it. It was very different — there was no argument at all. There are definitely lots of situations in Latin America and around the world where this would be an issue, and it would have to be worked out in the mapping process.

MAC CHAPIN
Mac Chapin received a BA in History from Stanford University, and a Master’s and PhD in Anthropology from the University of Arizona. He has worked with Indigenous people in Central America since 1967, when he served as a Peace Corps volunteer among the Kuna Indians of Panama. He has worked for the Agency for International Development, the Inter-American Foundation, World Wildlife Fund, and Cultural Survival. He is presently the Director of the Center for the Support of Native Lands, which assists Indigenous groups of Central America’s tropical forests in their struggle to protect their lands and their natural resources.
Mac Chapin Working Group

Mapping of Indian areas is designed to help Indigenous groups make claims to their land and natural resources. These maps have shown that Indigenous areas are generally sustainably managed, as evidenced by high levels of green in satellite imagery. Indigenous groups can utilize maps to prove to the government they have a legal right to the area. By using Indian names for areas and features such as rivers, these maps strengthen their claims. As a result of the Indigenous mapping process, governments now use Indian names for these resources, further cementing their claims. In addition, governments have a better knowledge of where local Indigenous groups live, which reduces their ability to lease the Indian land for development projects or waste sites. This mapping process does not purport to determine topography, identify land tenure, or demarcate Indigenous territories. It is merely a tool to empower local populations and educate them about their resources and land area.

The role Mac Chapin and Native Lands take in the mapping process is to initiate the idea, offer technical training, and help local groups achieve their goals. The point of training is to teach representation of spatial structure — it is not to alter the views of the Indians towards their environment. When initiating a new project and subsequent survey, it is necessary to work with the group’s leaders. It is the responsibility of the leaders to determine who will survey the area — those most knowledgeable about local resources. Women are not currently included in the surveying process, since in those Indigenous cultures in which mapping has been done, it is not acceptable for women to travel between communities. This raises the question of whether women’s resources are excluded from the maps. Women are, however, included in the community analysis of the maps and often give input at this stage. After the initial success in Honduras, it was possible to show other Indigenous groups what has worked, which can give them ideas to help them to achieve their goals. Because mapping is designed to help Indigenous groups make claims to their land and resources, they must be the ones who ultimately decide how their project will proceed.

The following excerpts expand on some of these themes:

Mac Chapin: By way of introduction, we are working on a case study and methodology manual of what happened in Nicaragua and Panama. There is a lot of interest from around the world about using these methodological tools. Those interested include
groups from Vietnam, Indonesia, and Africa. Many groups want to map their homelands in order to get the land from the government, but there exist many political problems. Conservation groups are becoming too involved. Mapping methodology could be adapted to just about anything — game animals or habitat types for natural resource management, for example. With local knowledge, you can do this mapping because Indigenous people already know where these resources exist.

Problems arise with political dimensions. The whole process must be managed by groups within the country and must be done through local groups. This mapping serves to empower local groups, and educate them; the maps belong to the community. They are having workshops to discuss land issues — mapping gets them focussed on these issues. With maps, they are able to know what is going on in nearby communities and share information.

Julie Greenberg, Yale F&ES: If the knowledge is already in peoples’ heads, what does it mean to “train” mappers? Does it alter the way they see things? What does the training include?

MC: No, it does not alter their views. It is technical cartographic training — how to represent space. It takes their knowledge (in time traveled, for instance) and teaches them how to represent scale — just technical stuff. They are very good artists, they just need to learn how to make maps. We did not want to give them base maps to fill in, since the product would not be their own map. Some maps are messed up on distance, but they use aerial photographs to correct them.

Jane Dixon: To what extent is map making traditional for Indigenous groups?

MC: The Kuna Indians have mapped sacred sites for years — for their own protected information. They love to list the names of places along a river. They understood the idea of mapping immediately. Some groups do not, and that is another problem.

Brian Guse, Indiana University School of Public & Environmental Affairs: Do you have intergenerational teams work as surveyors to give a historical view of the depletion of natural resources and the emergence of outside influences?

MC: No, but it is true that elders know the region the best. We go into a community and talk with the leadership, who then appoint a team of surveyors. They choose the most knowledgeable people to work on a survey. A lot of discussion takes place. Continual checking of maps with the community also takes place. The material is then presented to the community. This facilitates discussions of resources and so on.
Carlos Ramirez, Department of Biology, Lehman College, CUNY: Who designed the original questions?

MC: It was a collaborative effort between MOPAWI, a development organization, and MASTA, a local Indian organization. There is a difference between academic and applied research. Applied research is a group effort, whereas academic research has a principal researcher and assistants. Advisors from the outside should be considered as just technical assistance. The information belongs to Indigenous people.

George Appell, Borneo Research Council: If you were to apply the technique to Borneo, you would get two different ethnic groups with two different land tenure policies, but the maps would look the same. Land tenure is critical, but maps do not include this information.

MC: Mapping is simply land use. There are several reasons for doing this: the goal for Honduras was for the Mosquitia to show the government they owned or occupied land. Government at times thinks no one lives somewhere. The goal was to document that the area could not be used as a waste site because it was occupied by Indigenous people. They used government geographic maps to show vegetation patterns. This way the government could not deny their claims because it was the government’s own map. These maps also showed that areas used by Indigenous people were used sustainably, that is, the areas were still verdant.

Jake Kosek, Yale F&ES: How would you compare the accuracy of your maps to government maps — how different are they in terms of what they are mapping? Are there different priorities or ideologies?

MC: Our maps did not include topography, some government maps do. Government maps are just physical features. One difference is Indian names for all the rivers, which legitimizes their claim to the land. After this, the government began to put the Indian names of rivers on their maps.

Henry Kernan, Forestry Consultant: What happened to the pulp and paper mill project in Honduras?

MC: Initially, the project was opposed by conservationists. Many conservation groups went there to stop the plan. After the plan was stopped, the Indians took over to block the Stone Container Corporation’s plans to develop the area.

John Friede, Worldview Ltd.: Through The Nature Conservancy, the Earth Foundation is planning on purchasing land in the Darién Gap. Will this stand the test of time? Will it contribute to the maps, and will the maps be useful? Is debt purchasing of land helping, or are there conflicting agendas?

MC: Yes, The Nature Conservancy is associated with ANCon, a local NGO that owns large ranches and farms. They are involved in...
conflict with Indian lands because they buy up large parcels of land. Right now they have one parcel of land that actually has an Indian village inside it. They have had some tremendous conflicts with Indians. They keep trying to tell Indians how to behave. Indians do not appreciate these programs because they are not sensitive towards Indigenous needs or desires. They need to find a middle ground where they can work together. The strategy is to find a common interest.

The Kuna are coming out with a book with Jorge Ventosillo, *Plants and Animals in the Life of the Kuna People*. It includes articles and essays on Kuna life. It mixes western knowledge of animals with Kuna ideas of these animals. There is a section on medicinal plants, and essays on how resources in their area are disappearing. They blame capitalism, but also blame themselves for playing into capitalism. Currently, organizations are trying to work with local Indigenous groups to manage their resources together.

**Susan Place,** **Department of Geology, California State University, Chico:** Are women’s resources excluded from these male-made maps? Would women’s teams show different resources in their maps?

**MC:** Men tend to manage things in Latin America. Women do have a say, but men tend to be in charge. Indigenous women’s groups are becoming more popular. When working with Indigenous people, men tend to come forward, making it more plausible to work with them.

**Ted Macdonald:** It is the communities themselves who do not put the women forward to work on designing maps. Culturally, it is against the women’s roles to go from community to community. They are looked down upon if they do this.

**JG:** Do women play a role when maps are being reviewed? Are women able to state what has been left out of a map?

**MC:** Maps are presented to the community as a whole, so at that time they do have an ability to say something. Often women are extremely vocal.

**TM:** Men travel farthest from the community and experience most areas while hunting. Also, they maintain culturally modified trees to mark boundaries between villages. How are you able to map these areas?

**MC:** The farthest area away from the village was the most difficult part to delineate and map, and a lot of vagueness remains. You have to make sure they do not exaggerate their area, which could have negative effects in future land claims.

**TM:** What do they use as justification of outermost limits?

**MC:** You accept it or you don’t. Mapping was done and accepted by
the entire tribe. It was also legitimized by the government. It is the best you can do.

**Michael Dyssel, International Development Program, Clark University**: How applicable is this mapping in semi-arid regions where resources are not well defined?

**MC**: They do have markers in these regions. They know a specific place, and can use a visual marker. Aerial photographs are much easier in these regions because there are no clouds or canopy to obstruct photos.

**Bronson Griscom, NYU/NY Botanical Garden**: What was the initiation process of the project? You went to the groups to see whether they were interested?

**MC**: Discussions began and solidified. When we went to Panama, we already had something to show. We asked if local groups would be interested. After many meetings with Indian leaders, they discussed their priorities, and found the project would benefit them. You must explain what is going on, offer something, and then allow them to determine what they need from it. Mapping is not the most difficult aspect, but, rather, the social organization of the project is the complex part. How you select surveyors, how they are trained, and how they interact with the community is the part that is difficult to implement.

**JG**: How essential are maps to formalize claims? Do you think maps are essential?

**MC**: At some point during the process, maps are essential for land claims.

**JK**: How do you deal with people being afraid of mapping because it will codify today’s resource use patterns, while resources change over time? How do you deal with demarcation and enforcement?

**MC**: We made it very clear that this is just land use — it has nothing to do with demarcation. We do not say we are going to demarcate Indian lands because governments will oppose it. Governments support these projects because the local Indian groups went to the ministries to gain their support and collaboration. They billed it as a technical exercise, which gained further government support. About fixing resources, yes it is a problem. It is always a problem, but it is important for these groups to hold on to what they have.

**JF**: While there may be a genuine value to mapping for the Indigenous cultures to know where their resources exist, isn’t there a threat that developers and investors can use this information to better exploit these resources? Do you have a system to make information available to local groups but keep it from large developers?
Janis Alcorn: Because of satellite imagery, these big groups already know what is there without going into the area. They can, however, hide some valuable resources, such as gold mines. It is always hard to know how knowledge will be used by different groups.

GA: It is nice to see there are countries where resource use is negotiable by the people, and not just by the government deciding how the resources will be used.