

BUFFER ZONE MANAGEMENT AND AGROFORESTRY

SUMMARY REPORT OF A NATIONAL WORKSHOP

8-11 August 1995
Central Mindanao University
Bukidnon, Philippines



NECI



ICRAF



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SANREM-CRSP

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Compiled by
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Foreword

In the Philippines and many other parts of the tropics, human pressure on land is so great that the struggle to protect natural biodiversity is being lost. Legal protection is rarely sufficient to maintain the integrity of conservation areas. Local people often view government-imposed restrictions on free use of park resources as an infringement of their legitimate rights. New mechanisms are needed to bridge the gap between the needs of local people and the long-term objectives of protected areas systems.

Working Definition of a Buffer Zone

“A zone, peripheral to a national park or equivalent reserve, where restrictions are placed upon resource use or special development measures are undertaken to enhance the conservation value of the area”

Sayer, 1991

The development of viable buffer zone management systems is one of the greatest challenges to effective protection of the biodiversity of the Philippines' national parks and natural reserves. But this is not a simple matter. A number of integrated conservation-development projects (ICDPs) have been attempted in the Philippines. These have produced many useful lessons, not least of which is that combining the objectives of enforcement with improved livelihood systems for people residing near protected area boundaries is very complex, and prone to many pitfalls. Thus, the results of many buffer zone management efforts have been disappointing. Still there are some buffer zone initiatives that have shown good progress. What are the lessons to be learned and reinforced elsewhere?

The Philippines' Integrated Protected Areas System (IPAS) is being organized to implement management programs for many of the major protected areas in the Philippines. Synthesis of experiences and lessons is urgently needed to guide the numerous current ICDP efforts.

The Sustainable Agriculture and Natural Resources Management (SANREM) Program is a global initiative to develop participatory methods to address key sustainability problems using a whole-landscape approach. A key part of SANREM's work is to help develop the elements of a natural resource management plan for the Manupali watershed, Bukidnon. This entails active engagement in the buffer zone areas of the Kitanglad National Park, one of the Philippines IPAS sites. As the SANREM Biodiversity Consortium pursues its work to develop methods for buffer zone management, it was judged opportune to hold a national meeting through which the Consortium could help synthesize the current status of such

work elsewhere in the country, and share its experiences with others facing common concerns.

Workshop Objectives

1. To review the principles and experiences in buffer zone management and agroforestry
2. Identify the lessons that can be usefully applied in current and future buffer zone management programs.
3. To foster closer linkages between institutions (international and national, government and non-government) and individuals (scientists, administrators, development workers) so as to better ensure cross-fertilization of knowledge, principles, and practices that will enable them to succeed in their buffer zone management efforts.
4. To plan follow-up action that will accelerate the successful implementation of buffer zone programs in the Philippines.

The Organizers

The workshop organizers came from three institutions:

Network for Environmental Concerns

Romeo Banaynal
Rainero Niese
Edgar Testa
Jesse Pagobo
Francis Pagobo
Erlinda Malingin

Philippine Council for Agriculture and Resources Research and Development

William Dar
Rogelio Serrano

International Centre for Research in Agroforestry

Dennis Garrity
Christina Glynn
Jesus Lumdang Jr.
Glorilyn Acaylar
Sunny Ray Amit

Sponsorship

The workshop was co-sponsored by nine institutions: The Network for Environmental Concerns, Inc. (NECI), the International Centre for Research in Agroforestry (ICRAF), Philippine Council for Agriculture and Resources Research and Development (PCARRD), the Sustainable Agriculture and Natural Resources Management (SANREM) Program, the Foundation for the Philippine Environment (FPE), the Ecosystems Research and Development Bureau (ERDB) of the Department of Envi-

ronment and Natural Resources, Central Mindanao University, and the National Power Corporation.

Funds for the workshop were provided by USAID through the the SANREM Program, and by the Foundation for the Philippine Environment. Central Mindanao University graciously hosted the meeting venue.

Participants

Participation was broadly based. Seventy-five persons attended the meeting. A full listing is given in the appendix. They included individuals from national government agencies (including the Department of Environment and Natural Resources, National Power Corporation, and PCARRD), non-governmental institutions involved with protected areas (including Haribon, the NGO for Integrated Protected Areas, Philippine Eagle Foundation, NECI, Green Mindanao, Kalahan Educational Foundation, Mindanao Environment Forum, and Natripal), universities (UP Los Baños, Central Mindanao University, Xavier University, Visayas State College of Agriculture, University of Georgia), local government institutions, donor institutions, religious organizations, indigenous communities, consultant organizations (including Development Alternatives and ACIPHIL), and international research institutes (ICRAF and CIP).

Structure of the meeting

The meeting was composed of five parts:

- Opening session to set the stage
- Paper presentations
- Workshop that examined the current status and action needed in 4 specific protected areas
- Workshop that examined 5 critical issues in implementing a successful integrated conservation-development project
- Closing session to sum up the meeting's outputs

Opening Session

The meeting was opened with an introduction of the participants by **Dr. Rogelio Serrano** and a welcome by **Dr. Jaime Gellor**, President of Central Mindanao University. In the opening address, **Dr. William Dar**, Executive Director of PCARRD, emphasized his appreciation for the 'novel idea' to hold this activity. He remarked that the very large and diverse group of participants, predominantly funded by their own resources, was a gratifying expression of vibrant interest in the topic. He noted that the meeting comes in the midst of revolutionary policy change to save the remnants of the Philippines' forest ecosystems. Logging has now been banned in all old growth forests, with only 800,000 ha remaining. The number of timber concessions has now been drastically reduced from several hundreds to about 30 at the present time.

Dr. Dar reviewed briefly the major programs being implemented to protect and rebuild the country's remaining forests. He highlighted the Integrated Protected Areas System (IPAS), which has designated a critical group of biologically rich areas for intensive protection efforts. He also noted two key international programs that are addressing buffer zone issues that are contributing significantly to methodological advances and participatory approaches to assist conservation practitioners: The SANREM Program, and the Alternatives to Slash-and-Burn Program. He encouraged the participants to use the meeting as an opportunity to synthesize the rich array of experiences from the indigenous community sector, the government sector, and other related institutions within the Philippines with the global and regional perspectives from the international representatives, and called for the formulation of fresh strategies for protected areas management.

Dr. Dennis Garrity, ICRAF Regional Coordinator, briefed the group on the objectives of the meeting, and reviewed the scope of the program and itinerary for the field trip. He expressed the organizers' intent that the outputs of the meeting, the summary report and proceedings, will be widely circulated as a resource for both government and non-government personnel. He indicated that a major part of ICRAF's mission was to help alleviate deforestation by being a 'full-service' partner in the cause of biodiversity conservation through reconciling the production needs of farming communities on park boundaries with the survival needs of preserving a rich and priceless tropical biodiversity heritage.

He directed the group's attention to three inter-locking elements that need to be addressed in a successful buffer zone management program: Development-enforcement linkages, land tenure solutions, and technologies that increase local people's income and intensify land use in an environmentally sound manner. He emphasized that although there has been justifiable disappointment in the story of conservation so far, history shows that it is never too late to rejuvenate momentum

for the task. Much will depend on the participants initiative in proving the meeting to be a resource from which everyone involved can gain.

Congressman Boy Tan addressed the group on behalf of government. He emphasized that the Philippine population is composed of 70% farmers and rural people, and that it was imperative that they be strongly represented in policy-making on environmental conservation. He highlighted the importance of PCARRD as a premier engine of innovation to guide government, and endorsed the importance of interface projects, such as SANREM, in facilitating the participation of local people in conservation efforts.

The Benefits of Buffer Zones

Buffer zones provide gradients between totally-protected land and intensively-used land. As such they cannot be easily defined or allocated to categories. Every situation is unique. However the following characteristics should apply to all buffer zones:

Biological benefits

- Provide a filter or barrier against human access and illegal use of the strictly protected core zone or conservation area.
- Protect the strictly protected core zone or conservation area from invasion by exotic plant and animal species.
- Provide extra protection against storm damage, drought, erosion and other forms of damage.
- Extend the habitat and thus population size of large, wide-ranging species in the protected area.

Social benefits

- Provide a flexible mechanism for resolving conflicts between the interest of conservation and those of the inhabitants of adjacent lands.
- Compensate people for loss of access to the strictly protected core zone or conservation area.
- Improve the earning potential and quality of the environment of local people.
- Build local and regional support for conservation programmes.
- Safeguard traditional land rights and cultures of local people.
- Provide a reserve of animal and plant species for human use and for restoring species populations and ecological processes in degraded areas.

The value of buffer zones will be greater to the extent that they meet the following criteria:

- tree cover and habitats should be maintained as far as possible in a near-natural state;
- the vegetation of buffer zones should resemble that of the protected area, both in species composition and physiognomy;
- buffer zones should have similar biological diversity to the protected area;
- the capacity of the ecosystem in the buffer zone to retain and recycle soil nutrients should be retained as far as possible. Similarly, buffer zone activities should not have negative impacts on the physical structure of the soil or on its water-regulating capacity.

Exploration of buffer zones should, as far as possible, make use of traditional, locally adapted lifestyles and resource management practices.

Source: Sayer 1991



Paper presentations

The following are summaries of the major points made by the authors of papers that were presented. Summaries are limited to papers for which a written manuscript was received. The presentations were led off by a paper on the global perspective on buffer zones by Dennis Garrity. This was followed by a Southeast Asian regional presentation with a perspective from Indonesia by Malcolm Cairns. Successive papers focused on a wide range of Philippines cases.

Buffer Zone Management and Agroforestry: Some Lessons from a Global Perspective

Dennis Garrity

This paper distilled some of the lessons learned from the global experience with integrated conservation-development projects, drawing upon the review by Wells and Brandon (1992). Historically, park management emphasized a policing role to exclude local people. Gradually it was recognized that communities near protected areas often bear substantial costs as a consequence of their proximity to these areas, yet gain little in return. This led protected area managers to increasingly seek local cooperation, and recently, to the introduction of ICDPs. It is now universally recognized that successful protected areas management critically depends on the support of local people.

ICDPs tend to engage in three distinct activities: Protected area management, buffer zone establishment, and local social and development activities. The buffer zone concept is universally recognized as a high priority, but there are few working examples to provide guidance on its functional use. One of the most difficult issues faced by ICDPs is reconciling 'top-down' objectives and 'bottom-up' decision-making. The site-specific conditions vary so enormously that project planning must be based on systematic and detailed study of local social, economic, and biophysical conditions.

Most ICDPs fail to establish an explicit linkage between their rural development activities and ecosystem protection. Practical contractual relations that include such an explicit linkage are essential. ICDPs must treat local people as active collaborators rather than passive beneficiaries. This inevitably leads to some form of formal village conservation agreement. Controlling in-migration is one of the most crucial issues in the success of an ICDP. Few projects have addressed this.

Efforts to promote local development may take many forms. These include: improved natural resource management outside the protected area, community social services, nature tourism revenue, road construction, and direct employment with the project. There is growing interest in forms of more intensive land use for forest margins all over the world. Agroforestry practices provide a variety of ways in which agriculture can be intensified, tree cover enhanced, and biodiversity extended outside protected areas. Indigenous methods are often the best starting point for practical insights on the best directions for farming systems development. Agroforests have proven to be one of the most suitable means of combining biodiversity protection with farming. Research will play an increasing role in provid-

ing options and insights for ICDP development. The SANREM and Alternatives to Slash-and-Burn Program are two examples of such research efforts. They are both implemented at a global level.

The problems of integrated conservation-development appear to be complex and variable compared to the limited efforts invested so far. However, such approaches to address local people-park relationships must be reinforced because there are few alternatives. The best successes are not from short-term aid projects but from the initiatives of local community groups and resource managers that exhibit a long-term commitment to the cause of ecosystem protection.

Stabilizing Upland Agroecosystems to Protect National Park Buffer Zones

Malcolm Cairns and Dennis Garrity

Kerinci-Seblat National Park is the largest remaining block of tropical rain forest in southern Sumatra, Indonesia. The World Bank is currently mapping a strategy for a major integrated conservation and development project (ICDP) in the park's boundary areas. We studied people-park interactions in a densely-settled area where the park boundaries have been relatively well respected by neighboring farm communities for many decades (see map on following page). This is unusual in the realm of park protection in Southeast Asia. Our research provided insights into the factors behind this.

The relative harmony between farming systems and the natural environment in the Air Dingin-Muara Labuh Area was found to be a unique fusion of socio-cultural characteristics of the Minangkabau people, historical events that have shaped West Sumatra's development, and agroecological attributes of the landscape. The study area is not typical of upland conditions in Southeast Asia: shifting cultivation currently plays only a marginal role within farming systems; the soils are not highly infertile; the Minangkabau people have institutionalized mechanisms of out-migration to maintain a population-land base equilibrium; the system of land tenure ensures access to land and prevents in-migration by non-Minang; and there is a long history of producing tree crops for world markets.

One land use system commonly observed in the area that fulfills both farmer production criteria and conservation-oriented buffer zone properties is complex agroforestry. ICDPs need to identify and implement mechanisms to encourage farmers to develop simple tree cropping patterns into multi-strata, complex agroforests.

Rural development in the more mature villages has reduced human pressures on forest margins through expansion of the non-farm economic sectors, offering alternative ways of making a living, increased out-migration, and adoption of family-planning. In contrast, the pioneer case study village receives few government services, development has stagnated, and villagers have remained impoverished and heavily dependent on timber extraction from the national park. This emphasizes the need for ICDPs to not restrict themselves to activities that are directly conservation-oriented-but to employ a more holistic approach. We need to consider how to shorten the village maturation period. At the mature sites, substitution from traditional extensive systems to more intensive production systems has caused a

Ancestral Domain and National Park Protection: A Mutually Supportive Paradigm? A Case Study of the Mt. Kitanglad Range Nature Park, Bukidnon, Philippines

Malcolm Cairns

This paper examines the close relationship of Bukidnon tribes with the forested slopes of the Mt. Kitanglad Range Nature Park in Mindanao, Philippines, and how their claims for ancestral domain may interact with the park's conservation mandate. The study is placed into historical context by reviewing attempts to assimilate the tribes under successive Spanish, American and Philippine governments, and their steady displacement by waves of migrant settlers. Natives were quickly relegated to marginalized minorities in the new society, and invariably responded by retreating further up the mountain slopes. It was through this process that the tribes now find themselves pressed around some of the last intact remnants of their ancestral homeland, the Mt. Kitanglad Range.

The park's rich biodiversity is threatened by rapid deforestation on its lower slopes, fueled by logging, wildfires, vegetable gardening, swiddening, and rising population densities from both high in-migration and fertility rates. Native belief that nature is controlled by a hierarchy of spirits whose wrath must be avoided, guides the tribes in a respectful attitude to the environment. Indigenous practices such as safe havens for wildlife, preservation of keystone tree species, and restricting swidden size indicate a conservation approach to resource management. The tribes reacted to the degradation of their ancestral lands in 1993 by organizing and creating a network of 'tribal guardians' to maintain vigilance on the forest margins. Some seizures of poached lumber have been made and the initiative appears to be gaining momentum. The community-based park protection (CBPP) that is evolving spontaneously in these forest margin villages is internally-driven and has been enabled by reviving and strengthening existing tribal institutions. This determined and highly organized surveillance of the forest warrants recognition by DENR, and argues for further empowerment of these communities by formally decentralizing forest protection to their control.

The tribes' demonstrated commitment to conservation suggests that granting them ancestral domain would not be antagonistic to National Park objectives. Rather, it could form the basis of a contractual agreement in which the tribes would guarantee protection of the forest margins in exchange for commensurate development programs. The cultural diversity of the tribes has contributed to maintenance of the park's biodiversity, suggesting that cultural conservation should be an integral goal in National Park protection.

The Community Forestry Program: Initial Experiences in Field Implementation

Buenaventura Dolom

Past forestry practices can no longer be relied upon for effective forest resources management. The government has no option but to involve the people in forest management. Community-based forest management (CBFM) has been adopted as the strategy for sustainable forest management. The program recognizes that local communities are in the best position to protect these resources, given proper incentives and training. The program envisions the development of organized communities that sustainably manage forest resources for their own benefit. They are granted access to a specified area of forest land through a land tenure instrument called the community forestry management agreement (CFMA), which has a tenure of 25 years renewable for another 25 years. The community is given responsibility to protect, develop, and rehabilitate forest lands (predominantly residual forests) and long term security for forest products utilization.

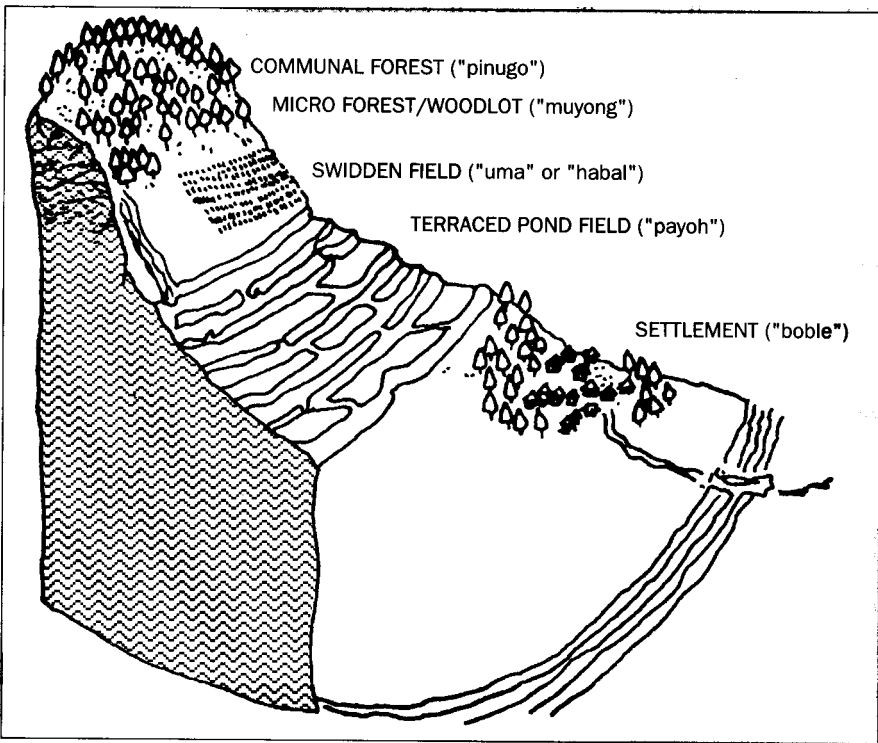
There are now 50 project sites, funded by ADB and USAID. In over 70% of the sites, local communities, when trained, organized, and given assurance of forest products harvesting rights, took responsibility for protecting their forests. The people's organizations in these sites formed forest protection teams that monitor check points and conduct foot patrols. They are exercising their legal authority to apprehend illegal loggers within their areas.

One key problem that has emerged is that government has been very lax in responding with assistance in apprehending illegal loggers, exposing members of the people's organizations to violence in some cases. The logging moratorium is in effect in areas covering 31 of the 50 sites. The ban is a serious limitation, preventing community access to timber resources, and thereby dampening their incentive to protect these resources from illegal loggers. The initial experiences in community forest management indicate that the concept has real potential in buffer zone management. But multisectoral support is essential to enable communities to take on their new responsibilities in resource protection.

Buffer Zone Management and Agroforestry: The Ifugao Experience

Rogelio Serrano

Indigenous forestry and agroforestry systems in the Philippines stand out as models for the development of buffer zone management systems to protect forest lands. The indigenous agroforestry system of the Ifugaos is a production system that provides particular insights in this regard. It integrates three traditional land use components: The *muyung* (second growth dipterocarp forest underplanted with coffee), the *uma* (traditional swidden), and the *payoh* (irrigated rice terraces). These three land uses have been viewed as independent, but in fact they are interconnected and are treated as one holistic system. Ifugaos have a clear understanding of the crucial interrelationships; this ecological consciousness has been passed on from one generation to the next.



The Ifugao Landscape Resource Base

The *muyung* serves as environmental protection for the *uma* and *payoh*, located further downslope. The natural forest stand is kept intact and underplanted with coffee. Seeds from the biodiverse *muyung* are dispersed to the adjoining swiddens, thus accelerating the fallow succession and fertility regeneration. The *muyung* also regulates and enhances water supplies to the rice terraces, making two rice crops possible each year. This water contains important quantities of nutrients for sustaining rice yields. There is minimal loss of soil due to erosion.

The case of the Ifugao, as well as other indigenous systems, provide principles and practices that help in the design of similar agroforestry systems suited for other upland areas. It confirms the technical soundness and sustainability of agroforestry in tropical rain forests. Income is a strong force for adoption. Prime consideration should be given to the profitability of the system, not only to its technical soundness.

The UPLB Experience in the Participatory Planning of Buffer Zones in Mt. Makiling Forest Reserve

Teodoro Villanueva and Jose Sargento

This paper discusses the progress made in participatory planning for buffer zone establishment and management in the Makiling Forest Reserve (MFR), a 4,244 hectare resource in Laguna Province. An executive order established a commission and implementing guidelines for the establishment of a 3-kilometer-wide buffer zone outside the reserve boundary. Within the buffer zone all environmentally critical development activities are required to have an Environmental Compliance Certificate (ECC) before implementation. Private land owners have been opposed to the establishment of a buffer zone. Municipal governments have requested a reduction in width of the buffer zone. The UPLB Technical Secretariat has recommended that the zone be decreased to 1-km in width, and that a second buffer zone be recognized inside reserve, in addition to the one on the outside.

Recent guidelines specify that the buffer zone will occupy those areas outside the reserve enclosed by the nearest national highways, and that the first 100 meters outside the boundary will be a 'green belt' wherein all uses must be compatible with the purposes of the reserve. The buffer zone established for Mount Makiling is unique compared to other protected reserves. Success remains a major challenge, but there are positive developments. These are attributed to the consultation and participatory approach that includes the various stakeholder affected.

Living in the Buffer Zone

Delbert Rice

A buffer zone is often conceptualized as three concentric circles: An inner circle of protection forest, a surrounding circle of secondary forest or buffer zone, and an outer circle of agricultural land. This concept is helpful in some situations, but does not fit the conditions of the Ikalahan lands, or those of several other tribes in northern Luzon. The entire area is a second-growth forest with 'islands' of primary forest scattered inside it. Scattered throughout are also 'islands' of agriculture.

The Ikalahan control about 15,000 ha of their tribal lands through a Communal Forest Stewardship Agreement, the first of its kind. The agreement gave the Ikalahan secure access to their resource base and induced their motivation to protect it. Ikalahan leaders established regulations and policies to protect the forests and watersheds, and provide a sustainable supply of wood. Many resource niches were identified which upon protection could generate additional income. Those that are currently being husbanded include wild fruit for jams and spreads (including guava, dagwey, dikay, hibiscus and roselle), fibers, spices, orchids, mushrooms and truffles. As each resource niche becomes economically important the people protect it, and the forests that nurture it. The increased cash income from the sale of forest fruits has caused the area of food crop land to be voluntarily reduced. This has enabled the forest to recapture more than 1000 hectares of crop land. The Ikalahan use a technique of culling and improving second-growth forests that is a modification of the Timber Stand Improvement Program of DENR. This modified method should be strongly encouraged. It will enable the nation to produce much more timber more economically and more equitably.

Secure land tenure is essential for the population to be willing to invest in protecting and developing the land. People must feel that they have clear authority to manage the land and its resources. Government should enter into respectful agreements with forest dwellers to release their creativity and properly motivate them to be protective, and to find and develop their own niches within the buffer zones. The Ikalahan experience gives confidence that the primary forest in their area will not only be protected but will slowly expand into the secondary forests bordering them.

The Tribal Trust: A Position Paper on Land Tenure for Indigenous Cultural Communities in the Philippine Uplands

Delbert Rice

This paper presents a concrete proposal by which the Philippine Government can be assured that the fragile upland ecosystems of the nation can be protected while the ancestral rights of indigenous peoples are recognized in a culturally acceptable way. It can be implemented immediately under existing laws without additional legislation. The Constitution of the Philippines recognizes the rights of the indigenous communities to their lands and resources. A proper form of land tenure for indigenous people on their own ancestral lands should be in the form of recognition of ancestral land rights, not a mere 'lease' type of contract.

The proposal involves five steps. First, establish communal control through a 'Communal Stewardship' instrument of land tenure. This has been in place for 20 years and has clearly proven to be effective. One limitation is that most communities have not accepted it because it must be renewed every 25 years. Extensive research has shown that Indigenous Cultural Communities are capable to manage ancestral lands, and that this task is already under the responsibility of the leadership of many of the Communities. In cases where the land is clearly ancestral, the community should obtain a Certificate of Ancestral Domain Claim (CADC), which establishes a legal claim that can be used for future tenurial development.

Second, the community should prepare an Indicative Plan for the protection and utilization of the land and resources. There are NGOs experienced in this work and ready to help any interested community. Third, on the basis of the above, the DENR should issue a Stewardship Agreement that will ripen into a Communal Title or Certificate of Land Ownership if the community fulfills its obligations under its Indicative Plan. One CADC may be subdivided into several Stewardship Agreements, each managed by a separate portion of the tribe. Fourth, during the lifespan of the Stewardship Agreement the community creates a more thorough Development Plan, which is revised periodically on the basis of experience.

Fifth, the community completes a Permanent Development Plan before the termination of the Stewardship Agreement and the DENR issues a Communal Certificate of Land Ownership (CLO), a recognition by government of their ancestral rights and a commitment to protect these rights against all other claim-

ants. The plan shall be attached to the CLO to function as a Trust Deed to guarantee the protection of the land and other resources as a patrimony for future generations. An institution is appointed to monitor the CLO to ensure that the terms of the agreement are achieved. These components should form a single program to provide land tenure for indigenous communities.

Community Organizing Participatory Action Resource Development Research: A Strategy for Buffer Zone Management

Romeo Banaynal and Dennis Garrity

The COPARD project was initiated under the global SANREM program. The goal is to characterize the upper ecozones of the Kitanglad side of the Manupali Watershed and explore strategies for sustainable resource management through the genuine participation of the local communities. Under the community organizing participatory action resource development (COPARD) model, *end users and farmers are actively involved, not as recipients or the subject of research, but as partners and implementors in the research process.* This requires social preparation that will enable farmer communities to identify and diagnose problems or issues, design potential solutions, selection and adoption of options or interventions needed in their own areas in close collaboration with the scientific communities.

The project area comprises the three barangays of Cawayan, Kaatuan and Sungco of the Municipality of Lantapan. It occupies a significant contiguous portion of the southern boundary of the Mt. Kitanglad National Park in the Manupali Watershed. Most of the southern park intrusions are coming from these areas due to good access and increased flow of spontaneous migrants engaged in vegetable production. The implementation of COPARD since April 1994 has maintained a community participatory agenda in all research processes.

The participatory landscape-lifescape appraisal (PLLA) indicated that the critical land use practice in the forest margins is a high rate of slash-and-burn in the remaining forest. There is an urgent need for methods to develop integrated sustainable buffer zone management. We aim to develop with the communities a zone of buffer zone management that has elements useful to replicate in other programs.

The approach hypothesizes that there are two essential conditions for sustainable buffer zone management and biodiversity conservation: Agricultural/ agroforestry intensification in the buffer zone in order to provide income growth on declining land areas and to alleviate the need to expand open field cropland for food and cash generation, particularly shifting cultivation; and community-endorsed effective enforcement of the boundaries of the natural forest ecosystem.

These two factors are critical in our work within the scope of this project. We are seeking solutions that provide a "social contract" between communities and outside institution to protect forest boundaries in a mutually beneficial way, that directly links the provision of assistance in the intensification of agroforestry systems in the buffer zone to effective enforcement of protected forest boundaries.

During a series of workshops farmers and community leaders were facilitated to come up with a detailed description of their individual farms and their village through simple drawings. These drawing were correlated with the established government maps. They are being used to establish the current pattern of land use and assist in developing solutions to land conflicts that prevent the development of clear management plan.

The partner communities proved to be worthy partners for the more technical issues addressed. Three main agroforestry practices were identified. These are timber-based systems, home gardens, and contour hedgerow-based practices. Farm plans drawn up by 65 farmers indicated that these are the predominant directions for farm development desired by the communities. We are now launching farmer-managed trials to refine these practices and provide a basis for agroforestry intensification. Meanwhile, we are working with the Talaandig indigenous community and the barangay and municipal governments, and the provincial IPAS governing body, to develop natural resource management plans that are integrated at all these levels.

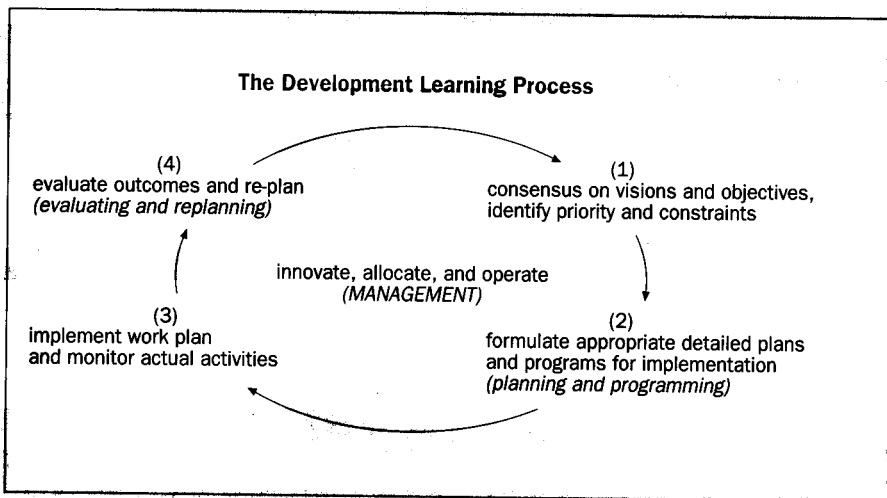
Integrated Area Development in the Interaction Zone of an ICDP Approaches for Kerinci Seblat National Park, Sumatra, Indonesia

John Dalton

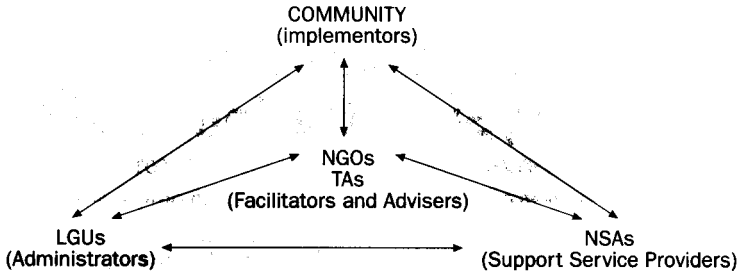
Since buffer zone management has some negative connotations (e.g. forced re-settlement) the term "interaction zone" is sometimes preferred to describe the peripheral zone around the boundary of a protected area (e.g. a national park or area identified for biodiversity conservation). The settlements in these area are typically upland indigenous or mixed communities practicing traditional or "imported" upland land uses, and accessing the forests and other natural resources of the "protected" area for a livelihood.

Although the boundary communities may still be the main agents of forest conversion and the degradation of biodiversity, these very same communities must also become the main actors and agents of the ICDP's initiatives to conserve biodiversity. Effecting buffer zone management is therefore the process of achieving this transformation, particularly the process of establishing community resource management in the interaction zone surrounding the park.

Accordingly, the approach to improving buffer zone management is essentially synonymous with proven approaches to improving community resource management, i.e. participative, resource-based, and experiential with the focus on capacitating smallholder farm managers and their communities, the *de facto* resource managers.



Actors and Roles in the Development Process



Key elements of the strategy include providing these resource managers with secure access to the natural resources they manage (outside the park) while concurrently assisting them to improve the sustainable productivity of these resources and farm family livelihoods to avoid further encroachment on protected areas. Another is to use the interactive development process itself to *strengthen local institutional capability to plan and implement community-based integrated area development*.

Similarly, as improved livelihood of buffer zone communities is of paramount importance to biodiversity protection, community development plans in buffer zone villages will need to be reflected and integrated into the plans of larger administrative units surrounding the conservation zone. For example, roads and other "development priorities" may need to be re-planned to lessen their impact on the conservation area while providing access to markets and services to buffer zone communities.

Assisting the hierarchy of development managers from family to village, municipal and even provincial levels to plan and implement community resource management is therefore the real objective of buffer zone management for an ICDP.