

Christian Lentz  
Research Intern, Cornell University  
160 Shore Rd  
Westerly, RI 02891 USA  
Phone: (401) 596-4636  
Email: [ccL4@cornell.edu](mailto:ccL4@cornell.edu)

Larry Fisher  
Cornell Program for Environmental Conflict Management  
112 Rice Hall  
Cornell University  
Ithaca, NY 14853 USA  
Fax: (607) 255-8207  
Email: [laf2@cornell.edu](mailto:laf2@cornell.edu)

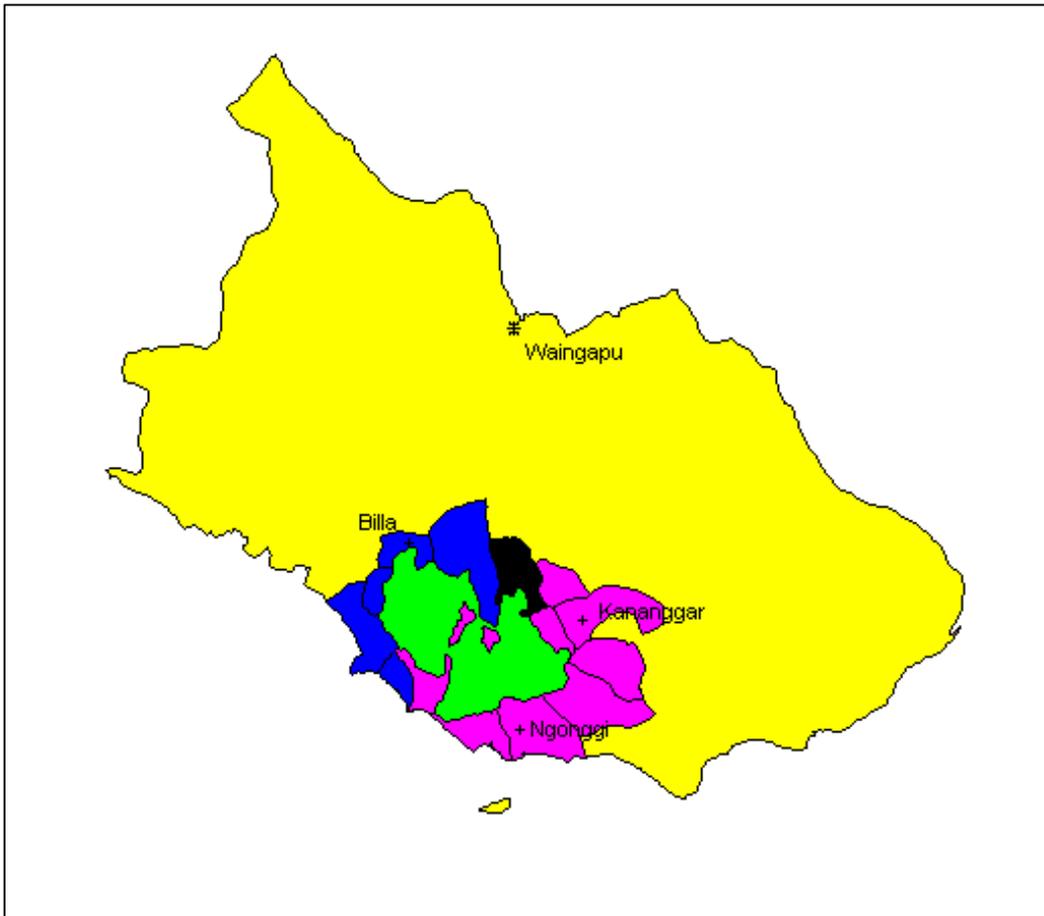
Agus Mulyana  
Team Leader, KOPPESDA  
c/o PO Box 71  
Ubud, Bali 80571 Indonesia  
Fax: 623 619 76487  
Email: [koppesda@indo.net.id](mailto:koppesda@indo.net.id)

Stream: Forestry

**NATURAL RESOURCES DECISION-MAKING  
IN WANGGAMETI:**

**A COLLABORATIVE RESEARCH AND CONVENING PROCESS**

**January, 1998**  
*(draft #4)*



**Cover:** Map of East Sumba illustrating district capital of Waingapu, selected sub-district capitals, Wanggameti Conservation Area, and adjacent villages.

### **Abstract**

This paper documents the research and multi-party decision-making process convened around the long-term management of an uplands protected area located on the island of Sumba in the dry Nusa Tenggara region of Indonesia. The Wanggameti Conservation Area (KKW) is regarded as a conservation priority due to its high level of biodiversity, role as a water catchment area, and importance for marginalized communities living in and around the protected area.

A broad network of NGO, government, university, and community stakeholders implemented a broadly inclusive research and convening process in KKW during 1997. Researchers incorporated participatory research methodologies (especially Participatory Rural Appraisal) to collect base-line data, to build capacity among communities and

government, and to facilitate stakeholders towards consensus-based management planning for the protected area. Meetings sponsored by the Nusa Tenggara Community Development Consortium (NTCDC) stimulated advanced, inclusive planning for the participatory research in KKW. The Conservation Working Group of the NTCDC is active in promoting community based natural resource management and hosted annual conflict management trainings involving stakeholders from KKW. Planning continued through a preliminary survey in the village of Wanggameti and a subsequent workshop.

To maintain the principle of participation through the research's implementation required capacity building among research participants and among the marginalized upland communities to prepare them for complex, multi party negotiation at a conclusive management planning workshop. At the planning workshop in Waingapu, the results of the research and community meetings provided a wider audience with a common set of baseline data that aided both in voicing community perspectives and in supplying a foundation for collective analysis. Seven substantive areas were covered in the research: forest boundary and land use issues; forest management and degradation; dry-land agriculture; livestock management; gender and women's participation; local traditions and perspectives on natural resource management; inter-agency coordination aspects in environmental management and community development.

It is hoped that the lessons learned with regards to methods for capacity building and strengthening relationships around natural resource management, in addition to the challenges encountered in their implementation, can provide insight to colleagues in other contexts engaged in developing similar approaches.

## I. INTRODUCTION

*Tana nua watu lihi  
Padira woka, palimba latang  
Ndalaru kabihu, djuru watu uma*

Land connected and separated by boundary stones  
Dryland farms above, irrigated fields below  
All the clans together, each in their own place

Lying in the outer arc of Nusa Tenggara the island of Sumba is composed primarily of uplifted limestone. Rugged topography characterizes the interior of the island where bald, rocky hills dominate an arid landscape punctuated by forested ravines and villages perched atop wind-swept peaks.

Isolated from the lowlands and government services, upland villagers' livelihood strategies rest on the three pillars of subsistence oriented agriculture, free ranging livestock, and the harvest of forest products. Irrigated rice fields can be found nestled in favorable rain-fed valleys, yet most farmers historically have practiced some form of shifting dry-land cultivation, especially in the uplands. Strong clan allegiances bound by complex marriage arrangements characterize inter-village relationships, either bringing them together or keeping them apart.

Within the last thirty years Sumba's uplands communities have undergone rapid

socio-cultural and agricultural change. The villages located in and around the Wanggameti Conservation Area (KKW or Wanggameti) in particular have experienced the penetration of a strong centralized state, the introduction of a market economy, and the evolution of their agricultural practices. The modern Republic of Indonesia has replaced a network of kings with a rationalized bureaucracy and customary law with civil law, eroding the legitimacy of traditional leaders and customs. The expansion of a cash-based market economy as well as increased access to migration and more fluid transportation and have all exposed the uplands to new forces, people, and ideas. Finally, dry-land agriculture has moved away from shifting plots incorporating long-term forest fallows towards a sedentary system utilizing short-term fallows.

Wanggameti stands as the island's largest closed canopy forest, a distinction that lends increasing international importance to its role as habitat for a diverse and unique range of flora and fauna. Furthermore, the forest is part of the critical watershed for the eastern half of the island, a major source of water for the lowland cities. The extent, cover, and species composition of Wanggameti have experienced degradation due to the clearing of land for agriculture and uncontrolled poaching of valuable tree and bird species. Yet, early efforts to conserve Wanggameti for its regional and international value have restricted villager access with regards to their traditional source of fuelwood, building materials, and income supplements: one village has been forcibly relocated and others are threatened with the same fate.

These threats -- to the conservation area and to the communities living adjacent to the forest zone -- provided the impetus for an analysis of the basic issues surrounding forest and conservation management: how to reach consensus decisions over the management of natural resources, the importance of local community participation, and the tools for inclusive management of protected areas. Beginning with a background on the actors involved and the conditions encountered, this paper tells the story of a broadly inclusive research and convening process initiated on the island of Sumba. It is hoped that the lessons learned and challenges experienced can provide insight into more effective approaches to forest and conservation management.

## II. BACKGROUND AND ANTECEDENTS

### **The Region of Nusa Tenggara**

The Nusa Tenggara region of southeastern Indonesia comprises three provinces, West and East Nusa Tenggara (NTB and NTT) as well as East Timor, and includes a population of close to eight million people (see Figure 1). By most indicators, the region is one of the poorest in Indonesia: Per capita incomes are about one third the national average<sup>1</sup> while rates for infant mortality and adult illiteracy rank as the highest in the nation (Corner, 1989). Agriculture and livestock rearing absorb the majority of the workforce.

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<sup>1</sup> In 1995, annual per capita income in NTT, the province including West Timor, was Rp 785, 281 (US \$ 357) while nationally, the figure was 1,940,462 (US \$ 883); the province's population displays the nation's highest incidence of poverty (*Kompas*, 1997; BPS, 1997). All calculations from Indonesian Rupiah to United States Dollar assume an exchange rate of Rp 2200 per dollar.

Farmer / pastoralists operate in a diverse range of agroecosystems including the driest areas found in the country. The upland areas of Nusa Tenggara pose particular challenges for alleviating the residents' poverty: Inhabited primarily by tribal minorities farming steep, erosion-prone slopes, upland communities have limited access to both government and private sector services and are poorly represented in the political process.

**Figure 1:** Nusa Tenggara and surrounding regions of Indonesia and Southeast Asia  
(*Lonely Planet Guide to Indonesia*, 1997)

### **The NTCDC**

Recognizing the need for a broad based, coordinated approach to development in the region, the Nusa Tenggara Community Development Consortium (NTCDC)<sup>2</sup> was created in 1990 as a non-binding, collaborative network to convene stakeholders around their similar interests and experience with development issues in the uplands. Beginning through small meetings between a handful of community development organizations that had programs, activities, and field experience in the uplands of Nusa Tenggara, the network has expanded organically to include an ever-wider network of public officials, practitioners, researchers, and community leaders. Representative of four sectors (NGO, government, universities, and communities), the network currently encompasses over 100 partners operating in seven program fields and working groups: conservation of natural resources, agroforestry, land affairs, gender, marketing, extension media, and participatory methods (especially Participatory Rural Appraisal and mediation).

### **The CWG and its Approach to Conservation**

In 1991, the NTCDC began to develop a strategy for addressing conservation and community based natural resource management issues through the formation of the

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<sup>2</sup> In 1997, Consortium members voted to change the network's name from the Nusa Tenggara *Uplands* Development Consortium (NTUDC) to the Nusa Tenggara *Community* Development Consortium (NTCDC).

Conservation Working Group (CWG). First convened around a cross visit to conservation areas in Indonesia's easternmost province of Irian Jaya, the CWG has since held a number of consultative meetings in order to fashion a working network of key stakeholders – government agencies, local and international NGO's, community members, and research institutions. The CWG has been active in raising environmental awareness, conserving biodiversity, and promoting community based natural resource management (CBNRM). CBNRM is a family of natural resource management approaches with links to the fields of conflict management, social forestry, rural development, co-management of protected areas, as well as participatory methods of data analysis and research.

A pivotal moment for the CWG occurred during a strategic planning meeting in September of 1995. Held to provide a venue for participants to share experiences and explore common needs, the meeting was instrumental in the CWG's development of an overall strategy and in the formation of a working network. Participants at the meeting identified KKW as one of eight sites<sup>3</sup> selected based on criteria of biodiversity, geographical representation, institutional mix, government classification, and intensity of conflicts and problems. The principle issues and potential conflicts being addressed in these sites include boundary setting, forest status, cattle grazing, fuelwood gathering, and customary (*adat*) versus state law. At the foundation of all these issues is *who* is involved and *how* in the decision making process. Thus the emphasis is directed towards participatory planning, collaborative problem solving, and inclusive management approaches.

One of the working group's programs has focused on developing participatory research and convening approaches to the management of protected areas in Nusa Tenggara. Using research as means for convening stakeholders in analyzing and resolving forest management conflicts, these consensus-based approaches have grown out of a series of annual conflict management reunions where representatives of priority sites present case studies for collective analysis and collaborative planning. The working group sponsored conflict management reunions in October 1995 and November of 1996 as well as a case study workshop in September 1995 that provided representatives from priority sites with the opportunity to present their cases and formulate site-specific approaches to their management. These approaches were first used in several villages in Lombok on the western slope of Mt. Rinjani National Park in late 1996.<sup>4</sup> In early 1997, the CWG's researchers and practitioners shifted their focus to Wanggameti, a site whose approach represents the most advanced application of linking research to collaborative planning processes.

### **General Site-Specific Conditions of Sumba and KKW**

The island of Sumba includes an area of 10,854 km<sup>2</sup>. Land cover is dominated by grassy savanna composed of *Imperata* (sp.) grasses. Although sparse and fragmented,

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<sup>3</sup> The others are Mutis in W. Timor, Sesaot and Rempek in Lombok, Ruteng and Riung in Flores, Tambora and Taliwang in Sumbawa; additional sites are also under consideration, provided the decision be based on the above criteria.

<sup>4</sup> See referenced unpublished reports.

Sumba's forests boast a high level of bio-diversity. Visual interpretation of a 1992 LANDSAT photo revealed that the remaining forest area in Sumba covered 10% of the total land mass and displayed a high level of fragmentation (BLI, 1996). Sumba's forests are endowed with rich floral and faunal bio-diversity: In good forest patches, tree species diversity is 50% higher than the mean for forests in Nusa Tenggara; these forest patches provide habitat for nine endemic bird species, seven endemic butterfly species, and two endemic species of amphibian (BLI, 1996).

The Wanggameti Conservation Area (*Kawasan Konservasi Wanggameti* or KKW) encompasses an area of 42,567 hectares. The borders of KKW include an Sumba's largest extant closed canopy forest (26,510 ha). It displays a full range of terrestrial forest types, stretching from mangrove forest on the shoreline to rare elfin forest on top of the island's highest peak (Mt. Wanggameti at 1,225m). Whereas East Sumba averages an annual rainfall of between 800-1200mm, KKW's average is higher at around 1000-2000mm per year. KKW houses the headwaters for the island's most extensive river network (Kambaniru River) which runs through Sumba's largest city, Waingapu. Wanggameti is East Sumba's most important watershed and it is regarded as a priority for the province of NTT (Monk et al, 1997).

The forest of Wanggameti was initially designated a protected area in 1932 under the colonial administration of the Dutch. Following independence, its status was reconfirmed under the Indonesian Republic in 1965. The classification of Wanggameti changed in 1982 when it became a Protection Forest (*hutan lindung*), administratively included under the broader umbrella of a conservation area (*kawasan konservasi*). In 1994 the local government issued an official recommendation that Wanggameti become a National Park (*Taman Nasional*). Since then, international conservation NGO's have expressed concern about the level of protection accorded to several forest areas in Sumba and have lobbied for the Wanggameti forest to become administratively combined with the Langgaliru-Manupeu Strict Nature Reserve (*Cagar Alam*) under the umbrella of a conglomerated National Park. During the course of this research, community members expressed concern over any possible change in status given unresolved issues concerning boundaries dating from the last status change in 1982.

### **Socio-Economic Conditions Of Communities In And Around KKW**

The Wanggameti Conservation Area lies in the upper watershed within the southern portion of the district (*kabupaten*) of East Sumba. The majority (57%) of E. Sumba's population has not finished grammar school. The district government autonomously generates an average of only 6-7% of annual government budgetary expenditures -- the shortfall must be made up through provincial and national subsidies (DPD, 1997).

Fifteen villages with a total population of approximately 20,000 live in and around KKW (see Figure 2) within East Sumba. These villages are contained within three sub-districts (*kecamatan*), characterized by mountainous terrain, limited infrastructure, and sparse settlement patterns of only 15 persons per square kilometer. According to available 1995 data, annual per capita income for one of the three sub-districts (*Kecamatan Tabundung*) is estimated at Rp 570,406 (US \$260) or approximately one quarter the

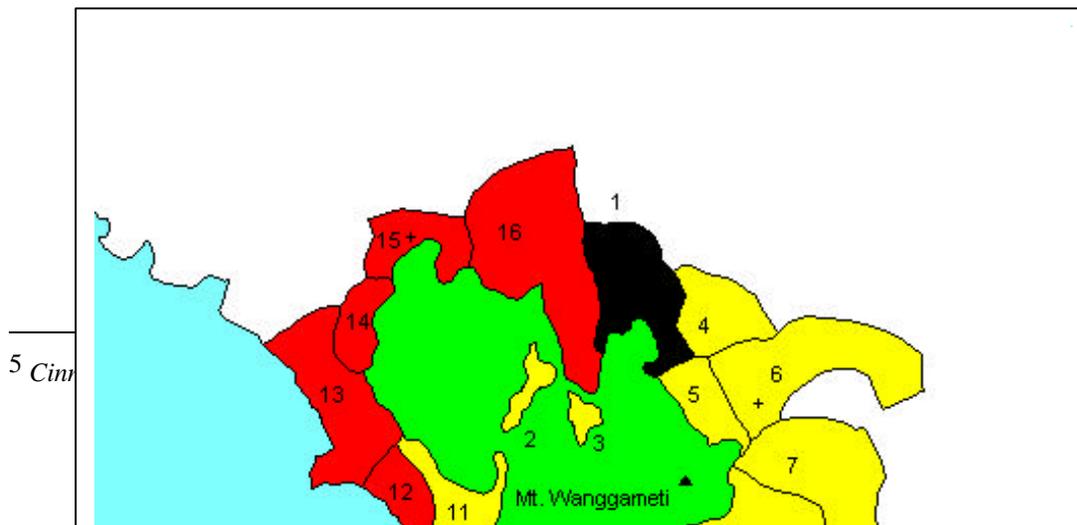
national average (BPS, 1995).

Livelihood strategies in the villages adjoining KKW center largely on subsistence-oriented agriculture and extensive livestock rearing: both activities, however, exhibit widely varying degrees of intensification and market involvement. The main agricultural crops -- corn, upland rice, and tubers -- are grown on unirrigated fields. Large livestock such as horses, cattle, and water buffalo are grazed extensively in pastures dominated by *Imperata* (sp.) grasses. Some small pockets of wet-rice cultivation can be found in narrow valleys with rain-fed irrigation, but this activity is further limited by the high numbers of water buffalo required for the puddling of paddies.

Poor soils, steep topography, limited water supply, and pests hinder the productivity of both agriculture and animal husbandry. Thin topsoil overlaid on bedrock of uplifted limestone forms the predominant soil structure and, as fields are often located on steep hillsides, erosion from wind and water contributes to decreasing soil fertility. Water for upland agriculture depends on inconsistent rainfall and is scarce during the long dry season; most food crops yield only one harvest annually. Free-ranging livestock frequently disturb agricultural plots and, in the dry season, farmers resort to the burning of *Imperata* grasslands to yield green shoots for forage. As a result of this extensive livestock rearing and seasonal grassland burning, many grazing areas suffer from soil compaction and erosion. Pests, such as locusts and rats, further threaten household food supply and, in years of serious outbreak, have led to famine.

Faced with these unfavorable conditions, farmers and their families are in a vulnerable position: low crop yields are the norm and seasonal shortfalls in food supply are common. Upland families experience an annual hunger season (*musim lapar*) and, in a custom known as *mandara*, families encountering poor harvests visit relatives in more favorable areas to borrow food.

The forest contributes significantly to village livelihood strategies and also plays a critical buffer role in these times of short food supply. The forest fulfills routine needs for these communities: wood for fuel; source of water for irrigation and household needs; vines and timber for building materials; plants rendered into dyes for ceremonial cloth. During the hunger season, the forest provides villagers with food in the form of wild vegetables (especially forest tubers) and fresh meat (forest pigs, deer, and other game). Furthermore, high value timber and non-timber forest products (cinnamon, *gaharu*, rattan, etc.)<sup>5</sup> serve as additional sources of income that can be used to purchase rice and other necessities.



Legend:	Wanggameti Conservation Area (KKW)	Former site of Katikutana (1.)
	Villages included in the study (2. Ramuk; 3. Katikuwai; 4. Praibokul; 5. Wanggameti; 6. Kananggar; 7. Janggamanggu; 8. Tandulajangga; 9. Ngonggi; 10. Praimadita; 11. Lailunggi)	
	Villages not included (11. Tawui; 12. Wahang; 13. Praingkareha; 14. Billa; 15. Waikanabu)	

Potentials for development exist in each of the three livelihood strategies discussed above. In areas implementing on-farm soil and water conservation measures, farmers have reported steady improvement in agricultural yields. The market in Java provides a consistent demand for Sumba's large livestock, especially cattle and horses. Intensification of livestock management in several areas has reduced the need for grassland burning and improved herd health. Forestry and agroforestry show promise through the cultivation of economically important trees such as candlenut, cashew, *gaharu*, cinnamon, and other species demonstrating good weight-for-value marketability and strong potential for mitigating shortfalls. However, increased market involvement is limited by poor infrastructure, especially seasonally impassable roads and expensive transportation.

### Socio-Cultural Issues

Upland communities in Sumba are noted for their sharp social stratification, strong clan allegiances, and for historical and religious ties to the management of natural resources. One anthropologist writes that the, "Kambera-speaking people . . . live in a rigidly stratified, almost feudal system, presided over by a shrinking but still influential class of hereditary nobles" (Hoskins, 1996, p. 219). While the Dutch eliminated the external slave trade in 1912, low-ranking caste members still serve the houses of nobility.<sup>6</sup> Cattle and water-buffalo ownership, aside from the latter's relevance in the puddling of rice paddies, stands as an important status symbol and form of exchange in negotiating bride prices: their ownership reflects sharp class distinctions in that nobles own herds into the thousands while slaves, none.

While allegiance to clan affinities historically led to headhunting and war, such violent exchanges have become a memory. However, identification with clans (*kabisu*) still constitutes a strong influence on villagers' identity and continues to influence land disputes and cattle rustling. Clans exert control over land ownership and play a key role in defining relationships between villages, the latter often determined by marriage ties. Since 1979, the Indonesian state has co-opted these *kabisu* allegiances into the modern nation state's apparatus, consolidating control under certain clans (Keane, 1997). The consequent combination of *kabisu* ties and administrative jurisdictions influences leaders' decision-making and reifies borders between districts and villages. The Anawaru clan, for

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<sup>6</sup> According to E. Sumbanese tradition, the people are divided into 4 classes (KAPITA, 1963) :

*Ratu*: priests, *adat* figures

*Maramba*: royalty, nobles

*Kabihu*: freemen

*Ata*: slaves, servants

instance, dominates the leadership of the sub-district of Paberiwai, and, consequently, scarce resources for infrastructure development are allocated to those village heads who share the same clan affinity. Furthermore, old feuds between the Paberiwai district head and his counterpart to the south still hinders cross-administrative cooperation.

Traditional natural resource management historically centered on consensus-based decisions made jointly by community leaders, *adat* figures, and villagers who met to declare forested areas sacred. *Adat* figures (from the *Ratu* class) oversaw the ritual use and management of the sacred forests through ceremonies associated with their ancestral animist religion, *Marapu*; the *adat* figures relied on community leaders (from the *Maramba* class) to control access and enforce joint decisions (Kapita, 1976). Ceremonial rights and regulations extended to the harvest of forest products, the hunting of game, the use of forest springs, and the opening of new land; violations of these were believed to lead to one's becoming lost in the forest, blindness, and even death. In effect, the observance of the regulations may have contributed to the conservation of large areas of primary forest such as Wanggameti.

Over the last 30 years, however, socio-cultural and political changes in E. Sumba have eroded traditional value systems with important consequences for the cultural integrity of the Sumbanese and, in turn the sustainability of natural resource management. The conversion of the majority of the population to Christianity and Indonesia's non-recognition of the *Marapu* belief-system as one of the five accepted religions have eroded the credibility of both *Marapu* and the *adat* figures under whose responsibility lay the sacred forests (Keane, 1997). The penetration and rationalization of the Indonesian state, market forces, public education, print media, and new technologies have further secularized the connection between religion and environment. In short, the net effect of socio-cultural change has precipitated a shift in the way the forest margin villagers viewed their forest resources: an area whose value was once primarily religious came to be defined largely in economic terms (Ragu and Djami, 1997).

### III. STAKEHOLDER ANALYSIS

#### **Government and Village Level Actors**

The public agency with the longest standing and biggest role to play in KKW's development and management is the district level government of East Sumba. In addition to determining policy for area development, local government units are responsible for supervising the activities of a wide variety of line agencies with interests in KKW, including forestry, livestock, agriculture, estate crops, and village development. At the district level, the government relies on the Regional Development Planning Board (BAPPEDA) to plan and coordinate development activities among the line agencies. However, BAPPEDA's top-down structure and centralized planning strategy limits their efficacy in the development of the villages in and around KKW.

The district government has a direct link to the villages in and around KKW through the agency of Village and Community Development (PMD). PMD's role has increased in profile within the last three years given that all of Sumba's villages have

become eligible for block grants from the central government designated for Indonesia's poorest villages (IDT). Yet, villagers in and around KKW report feeling a negligible impact with regards to IDT programs (Lasi and Gatur, 1997).

The current district head has also become directly involved in the management of KKW through the implementation of recent changes in conservation policy. In addition to proposing the elevation of KKW's status to that of a national park, the district head also issued some unique conservation-oriented policies such as the registering of chainsaws and the outlawing of trade in endangered birds. However, these policies have had some less positive aspects for the communities in and around the protected forest: in 1993, an aggressive resettlement policy was announced for communities living within and around KKW. The first village to be forcibly translocated was Katikutana; three other neighboring villages became priority candidates for local transmigration.<sup>7</sup>

The Forest Department has two branches operating in and around KKW, the Conservation Sub-Section and the Forestry Service, each involved in managing the protected area in line with its function. The conservation sub-section (SSKSDA) is concerned with the management of KKW in the protection of endangered flora and fauna and in enforcing conservation legislation. Their main activities concern raising community awareness about the importance of managing natural resources sustainably and of protecting rare plant and animal species. They are also responsible for recommending any changes in classification of KKW, such as its becoming a national park, to be signed by the district head. Since 1992, they have been actively cooperating with international conservation NGO's in researching avifauna and their habitat as well as collaborating on arranging a conservation strategy for Sumba's forest and marine environments.

The Forestry Service (DPKT) is vested with the responsibility of safeguarding the hydrological value of the Wanggameti forest. Main activities include the reforestation of grassy, steeply sloping hillsides both within (*reboisasi*) and outside (*penghijauan*) forest boundaries. Multi-purpose tree species constitute a portion of the trees planted and are intended to provide economic opportunities for villagers. Nonetheless, persistent conflicts with communities over the placement of forest reserve boundary markers and a lack of clarity regarding reserve policies have contributed to an atmosphere of mutual distrust between the villagers and forestry officials. Many of the seedlings in their reforestation projects end up scorched or eaten by livestock.

In addition to the Forestry Service, three line agencies under the administration of the district government have important roles to play in KKW. The Livestock Service (*Dinas Peternakan*) is charged with improving the quality and quantity of large livestock. Livestock is the priority development sector in East Sumba and the Livestock Service hopes to develop this sector through programs such as artificial insemination, distributing new cattle breeds from the central government (*Banpres*), vaccinations, etc. The Agricultural Service (*Dinas Pertanian*) works to intensify and diversify agriculture with special attention towards food crops. The Estate Crops Service (*Dinas Perkebunan*) is active in KKW because of a joint project with private enterprise to plant cashews in plantations and in privately owned gardens.

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<sup>7</sup> The villages of Wanggameti, located just south of the former village of Katikutana; and two villages, Ramuk and Katikuwai, who retain "enclave" status within the forest boundaries

Of the district level government agencies in East Sumba, the National Land Bureau (BPN) has a potentially large role to play. BPN is responsible for measuring and surveying land and the issuance of land ownership certificates. However, they have yet to initiate an active land survey and registration effort in the villages in and around KKW; villagers must rely on temporary sketches (*gambaran sementara*) for proof of land ownership.

At the village level, the various line agencies and PMD work through the village government and through Village Governance Units (LKMD) to implement their programs. The LKMD and village government are also the primary institutional means of channeling concerns and requests upwards to the sub-district government (*kecamatan*), line agencies, BAPPEDA, and, finally, to the district government.

According to participatory surveys with communities, two other entities play important roles in the village yet their institutional links have so far been under-utilized by the government in eliciting community perspectives. The Protestant Church provides leaders who influence values and community life; they are sometimes the primary institutional link to the outside world for villagers in remote areas. *Adat* figures (*Ratu*) and community leaders (*Maramba*) are trusted by the villagers, and are often chosen to settle disputes, oversee ceremonies, and act as an intermediary with the village government.

### **NGO and Private Sector Actors**

Several additional stakeholders have more recently become active in East Sumba: one large mining firm has been exploring the possibilities of gold mining; local and international NGO's have programs in rural development and biodiversity conservation. Broken Hill Proprietaries (BHP), a large international mining firm with headquarters in Australia began exploratory boring in KKW in early 1996 in search of gold deposits. Preliminary sample bores show wide distribution of gold yet soil mineral content is unknown at this time. The scope of their future operations remain mysterious and the potential impact on KKW, ominous.

Beginning in 1985, the Tananua Foundation in collaboration with World Neighbors initiated its program of extending soil conservation farming technologies to dry-land farmers in the upland communities in and around KKW. Since then, farmers working with Tananua report remarkable success with soil conservation through the terracing of steep hillsides using leguminous tree species (*Leucanae sp.*, *Calliandra sp.*, *Gmelina sp.*); in some instances they have also succeeded in separating land set aside for agriculture from land devoted to animal grazing. Tananua has helped reduce farmer dependence on the protected forest through aiding with the establishment of "family forests," agroforestry gardens of timber, fruit, and nut tree species, through provision of seedlings and technical support. To build farmer capacity, Tananua also has initiated the formation of work groups and inter-village farmer networks and has led cross-visits to facilitate learning.

Birdlife International is an international NGO with a large stake in Sumba's forest conservation. Following a survey of the island's avifauna, they rated the island of Sumba as one of the world's most important 221 Endemic Bird areas (Bibby et al, 1992; Jepson

et al, 1996). In partnership with Sumba's Conservation Sub-Section, they have begun formulating an island-wide plan to conserve biodiversity; through consultations with government leaders, they have lobbied at the provincial and national levels for an upgrade in KKW's reserve status. While Birdlife's efforts in Sumba have raised the profile of the island's remaining forested habitat, their single-issue advocacy with policy-makers have excluded communities and NGO's working in rural development, increasing uncertainty over the future of villages living in and around KKW.

### **Early Collaborations and Initiatives**

As one of the NTCDC Conservation Working Group's priority sites, KKW has been involved in early planning discussions, case study analyses, and cross visits. CWG sponsored annual conflict management reunions and a case study workshop provided representatives of from KKW's adjacent villages and relevant public agencies with a forum for openly discussing and collaboratively planning an approach to managing KKW. In May of 1996 farmers from the village of Wanggameti and district forestry officials visited a priority Consortium site in Sesaot, Lombok, to learn from their experience with community-based forest protection and management. The visit resulted in the formation of a Partnership for Forest Protection (KPH) in the village of Wanggameti between collaborating farmers and forestry officials.

Shortly after the cross-visit to Lombok, in June of 1996 Cornell University and FAO-APAN organized a preliminary survey of community forest management in the village of Wanggameti. Following the completion of this initial survey, a planning seminar was held to convene stakeholders to discuss the study's findings. The meeting provided the needed impetus for building local and international commitment to developing a coordinated, multi-stakeholder approach to managing KKW. A key recommendation of this planning seminar was the request for a broader based study including an additional nine villages in and around the KKW.

The broad planning for the collaborative research effort was decided upon later in Soé, Timor during November of 1996 at the Conservation Working Group's annual conflict management workshop. Multi-agency and community participants from KKW and other sites determined that research and documentation played a central role in overcoming their respective and often conflicting views over environmental management. In addition to strengthening the Wanggameti effort within the CWG's regional strategy, the group from KKW used the meeting to choose a methodology (PRA), design a research process, and identify a core team of facilitators who would lead a research and convening process. The core team was composed of representatives from the Forestry Service, Conservation Sub-Section, BAPPEDA, Tananua, and the newly formed Koppesda (Natural Resources Management Research Team).<sup>8</sup>

The diagram in Figure 3 was produced collaboratively by the representatives of

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<sup>8</sup> Koppesda was formed as a multi-disciplinary, NTCDC sponsored research team that could respond to requests from partners in priority conservation sites interested in applying research to collaborative management planning.

KKW at the above workshop. The process design illustrates two important features of the research process: first, that the formation of a core team was designed to lend continuity and multi-stakeholder representation; second, that the research was planned to unfold in a phased process beginning with capacity building in the communities and ending with joint planning involving institutional actors. It is important to note that while the principles of participation, capacity building, and consensus based planning were firm throughout the process, the specific guidelines illustrated were meant to be flexible enough so as to adapt to challenges encountered in each phase's application. Based on this original process design, APPENDIX 1 was written following the research and illustrates an amended design that details each phase's dates, participants, location, and outcomes.

**Figure 3:** Process design diagram for research and convening process in KKW.

#### IV. RESEARCH METHODS AND CONVENING STRATEGY

##### **Planning and Goals**

In December of 1996, a core team meeting was held in Sumba to choose sites and to organize the formation of the research team. The team chose nine village sites based on their proximity to KKW and on information supplied through the earlier preliminary study (Fithriadi, 1996). Koppesda, with temporary staff recruited from the University of Hawaii's East West Center (EWC), Cornell University, and the World Wide Fund for Nature (WWF), formed the coordinating research unit. Tananua provided critical help in socializing the research with communities. The district government facilitated connections with government agencies; their support enabled the effort to be multi-jurisdictional. Collaborating line agencies (village development, forestry, estate crops, agriculture, livestock, and BAPPEDA) allowed staff members to take temporary leaves in order to assist in the research. The research team was thus composed of individuals recruited from many of the stakeholding government and NGO institutions; a handful of "free lancers" brought the total number of researchers to 22.

In February of 1997, a training in research methodology focusing primarily on the principles and practices of PRA was held for the research participants. Following the training, the large group was broken into four teams, with consideration for balance in terms of background, affiliation, and methodological experience. The research coordinator supervised the coordinating research unit, which contributed an experienced researcher to each of the four teams. During research implementation, the research coordinator and one other researcher formed a "shuttling team" which maintained communication among teams, informed stakeholders of any procedural updates, and facilitated dialogue between distant parties. A practice PRA in the village of Praibokul provided an opportunity to build skills and test researchers' mettle in challenging rainy season conditions.

General, stated goals for the research process included:

- create an atmosphere of inclusiveness and facilitate stakeholders to collaboratively and more effectively manage natural resources;
- build capacity among communities and public agencies in support of inter-agency efforts to expand bottom-up development planning;
- gather and disseminate information; formulate recommendations for the long-term management of Wanggameti.

What is important to note is that the process and research were fundamentally inclusive and participatory, that they were aimed as much at "data gathering" as e capacity building" (both skills and coalition building), and that the process was focussed on encouraging objective, inclusive analysis of the issues.

The research was focused substantively on the role of communities in natural resource use and management, a broad subject area that included forestry, agriculture, livestock management, land use, inter-agency coordination, and community development. In investigating these fields, researchers were guided by three specific goals:

- provide accurate and relevant information;
- institute a framework for inclusive decision-making;
- develop a long term plan for the management of KKW.

Included in the information gathering stage was the identification and engagement of stakeholders involved in managing KKW so that they could be included in subsequent phases. In developing a framework for inclusive decision-making, researchers hoped to further identify key stakeholders qualified to form a forum, which could implement long-term decisions affecting the management of the Wanggameti forest.

### **Research Methods**

The need to gather information was linked to the imperative of encouraging collective community analysis, consensus building, and negotiation. The choice of Participatory Rural Appraisal (PRA) as a research methodology was predicated upon its close fit with consensus building approaches and the need for more effective participatory development planning. In addition, given the low level of formal education in the communities and the poor availability of information in and about East Sumba,<sup>9</sup> it was decided that learning needed to occur in two directions.

According to Robert Chambers, PRA is “a family of approaches and methods to enable rural people to share, enhance, and analyze their knowledge of life and conditions, to plan, and to act” (Chambers, 1994). PRA's principle strength lies in its supplying methods that help to build capacity among remote communities, a feature particularly relevant in the marginalized uplands of E. Sumba. PRA offers villagers a larger role in planning development and endeavors to instill in them a sense of ownership in the process. PRA demands that researchers from outside the village (*etic*) from NGO's, universities, and government agencies play the role of facilitator. It is the facilitator's responsibility to introduce the theory and techniques in understandable language such that villagers inside their community (*emic*) are capable of implementing and leading the research on their own. To increase the accessibility of information and counteract the problem of illiteracy, all methods involved a visual component and each team had at least one researcher fluent in E. Sumba's local language (*Kambera*).

Although the methodology of PRA does not stress the primacy of fulfilling scientific criteria (reliability, validity, and objectivity), several techniques proved to be effective means of producing rich localized information, sharp analysis as well as valid, reliable, and objective results:

- interdisciplinary teams of mixed disciplines and backgrounds;
- cross-checking between multiple sources both within and outside the village; the employment of different yet inter-related research techniques;

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<sup>9</sup>Secondary sources pertaining to Sumba are scarce. Primary statistical data required connections to access and was often biased or reflected poor research methodology. Access to data at the provincial level is limited by the high cost of travelling to the NTT's capital at Kupang, Timor.

- **d** repeated presentation of information before progressively larger plenary sessions -- from the hamlet, to the village, to the conservation area;
- facilitation of villagers to identify and analyze problems and to generate consensus-based solutions;
- multiple methods including community mapping, transect walks, trend and change analysis, oral histories, seasonal calendars, livelihood analysis, institutional diagramming, matrix ranking, and presentation and analysis.

In several cases, information on sensitive issues did not surface in the public fora of PRA techniques. Indeed, the issue of confidentiality initially compromised the depth and character of information on topics such as grassland burning, gender, and the role of *Marapu* in natural resource management. Such topics required semi-structured interviews to ensure informant confidentiality.

### **Convening Strategy**

The method of presentation before progressively larger plenaries proved valuable as a convening strategy to encourage coalition building first within and then between villages in and around KKW. The convening strategy strove to build a coalition out of disparate communities through a process designed to facilitate villagers to:

- build relationships above and beyond traditional patterns;
- recognize and analyze shared problems in natural resource management;
- share experience in overcoming those problems;
- prepare representatives for the multi-party joint planning seminar.

Within each village, PRA techniques provided an opportunity for villagers of diverse socio-economic stratas, clan affinities, and institutional backgrounds to identify, analyze, and achieve consensus on natural resource management. Community level surveys in the eight remaining villages were conducted during two rounds of PRA applied in a three-week period in April of 1997.

To facilitate linkages between villages and sub-districts an area level plenary session was held immediately following the village surveys. Participant representatives from each of the ten villages met to review the individual village studies and forge a collective community perspective on the issues and potential options. Government officials joining the meeting adhered to agreed-upon roles as observers. The sub-district seat of Ngonggi was chosen for its familiar, centralized location and its setting as a village on the border of the KKW. Logistics proved a formidable challenge, as it was necessary to find a place to stay and means of transportation for over 100 participants; mealtimes resulted in crowds of another 100 villagers.<sup>10</sup> The meeting proved critical in strengthening

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<sup>10</sup> The village head, with financial backing from the team coordinator, arranged for a truck to pick up the visitors, built an addition on the village office, bought mattresses, hired an army of women to cook, collected a truck-load of fuel-wood, and provided homestays for important visitors. *In general, cooperation with capable, local partners made the entire effort possible.*

relationships among villages based on the recognition of shared problems in natural resource management and common goals in overcoming them.

As follow-up to the area level plenary meeting, an additional gathering was held in Lailunggi. Attended by village representatives and the coordinating team of researchers, the meeting provided a forum for studying and cross-checking the results of the area level plenary session. The meeting also allowed the villagers a chance to choose representatives for the seminar and to rehearse public speaking and presentation skills.

The convening process applied in KKW was flexible enough to adapt to challenges encountered during its implementation. Indeed, the researchers had to alter their schedules according to events and regulations surrounding the national election, to local events in each of the communities, as well as to the schedules of busy government officials and colleagues. During implementation, the shuttling team played an instrumental role in keeping the four research teams abreast of schedule changes or late developments. Time projections were occasionally sacrificed in the interest of strengthening relationships among stakeholders, producing quality results, and building local capacity.

### **Documentation**

An important element of the documentation process was the teams' two-way, matrix-type analysis moving from site-based to substantive analysis. Researchers first documented the individual surveys of 10 villages completing data-analysis and evaluative studies on each; then, community plenary session results were produced and distributed among village leaders. In addition, the community meetings and subsequent documentation focused on a collective assessment of seven substantive issues using the Conservation Area as the unit of analysis:

- 1) Forest Boundary Issues and General Land Use;
- 2) Forest Management and Degradation in KKW;
- 3) Livestock Management;
- 4) Dry-Land Agriculture and Soil Productivity;
- 5) Gender and Women's Participation in Using and Managing Natural Resources;
- 6) Local Traditions and Views in Using and Managing Natural Resources;
- 7) Inter-Agency Coordination in Environmental Management and Community Development.

These integrative analyses were a significant step in gaining a full perspective on the forest zone as a whole, and in crossing traditional political and social decision-making "boundaries" in forging a broader coalition to address these issues.

However, the KKW-wide assessment of the key substantive issues displayed an uneven quality of analysis. The sections on forest boundary issues, livestock, forest management, inter-agency coordination, and socio-cultural dynamics are fine studies which provide major new insights, and are certainly worthy of publication and wider distribution. At the same time, the sections on agriculture and gender issues require more careful review, discussion, and major editing. The inconsistent quality is largely due to

the level of experience (both substantively and methodologically) of the authors, and would be more readily avoided in the future by more intensive consultation among teams and knowledgeable resource persons as the studies are being produced. Nevertheless, the substantive reports provided a solid set of base data for discussion and collective analysis at the second joint planning seminar.

### **Consensus Building: The Second Joint Planning Seminar**

Following the analysis, dialogue, and coalition building among the upland communities, the stage was set for a more broadly inclusive discussion of forest management issues in KKW. Held in the district's capital city of Waingapu, the workshop was convened to bring together all of the key stakeholders to assess the results of the research effort and define a consensus-based, forward planning process for managing KKW. With an opening speech by the district head, and more than 90 active participants throughout the proceedings, the seminar was the most inclusive and comprehensive effort to date to facilitate consolidation of available information and diverse perspectives on the future of KKW. Participants to the planning seminar included officials from the local, provincial and regional offices of the Forest Department, along with representatives from all relevant local government agencies, local and international NGO's, as well as church leaders. Twenty-four villagers were selected by their communities to represent them in the workshop and two members of the local press reported on the event.

Following the official opening ceremonies, the first day's sessions offered a chance for presentation and discussion of the research results. This began with a general overview of the KKW and an explanation of the research methods and strategy. The analysis of the village studies was then presented by substantive area in presentations made jointly by researchers and village leaders; information presented included general data and analysis as well as the results of the KKW-wide community meetings on these issues. At the end of the day, participants were divided into discussion groups according to interest in these topics, and provided with the research write-ups and community plans as "homework" to prepare for the following day.

On the second day, participants met in discussion groups to assess the research findings and the results of the community meetings. These groups prepared general recommendations that were shared and critiqued in plenary sessions; they met once again in the afternoon to edit their recommendations and develop them into more concrete plans involving time frames, funding sources, and implementing institutions. Meanwhile, the Coordination group expanded with the addition of representatives from each of the other topical groups; they became responsible for formulating an overall plan incorporating the priority recommendations of each of the groups, including general coordination mechanisms to guide the management of KKW. The group outputs were then shared, once more critiqued, and (loudly) affirmed in a final plenary session. At a dinner following the seminar, a large group of participants was invited to the district head's house to report briefly on the results of the meeting.

### **Substantive Research Results and Recommendations**

This section summarizes the findings of the research according to the seven substantive areas presented and critiqued at the joint planning workshop in Waingapu. Remember that researchers in the field focused on the role of communities in natural resource management and usage; the data coalesced into the seven substantive areas during the documentation stage as papers in Indonesian. Also included in this section are the consensus-based recommendations achieved during the workshop.

### *Forest Boundary Issues and General Land Use*

The pillars that form the boundaries of Wanggameti protected forest were positioned in accord with a prescribed consensus-based process in 1982 (TGHK). In practice, however, several communities claim that the placement of the boundary markers effected a shift from the boundaries established by the Dutch sixty years earlier. These discrepancies have resulted in an overall reduction in village land area, encroachment on existing agroforestry gardens, and increased restriction on villager access (Saefuddin and Biri, 1997). Produced during the research, a sketch map illustrating the village enclave of Ramuk serves as a primary example depicting the nature of boundary disputes (see Figure 4). Note the variance in area between Indonesian and Dutch boundary markers.

Another central issue that emerged during the research and public discourse was the problem of less than optimal land use encountered in many of the villages. Although farmers feel land for agriculture has become of short supply, a mapping effort in the village of Wanggameti revealed that only 25 percent of village land was used for agriculture; the rest of the village's land was largely underutilized pastures. Recommendations achieved to overcome boundary and land use problems included:

- reconstitute village and forest boundaries through LKMD recommendations to the district government and relevant agencies;
- develop new approaches to participatory land-use and boundary mapping in the villages surrounding KKW involving BPN, the Forest Department, EWC, WWF, Tananua, and Koppesda.

### *Forest Management and Degradation in KKW*

The importance of Wanggameti's forest value encompasses the international (as a storehouse of high biodiversity), regional (as a priority watershed area), and local (as a source of building materials, high value forest products, medicinal plants, and dietary supplements). However, participants agreed that forest integrity has experienced declined owing to the following five factors: first, timber and non-timber forest product exploitation; second, burning of pasture and forest land; third, a history of slash and burn agriculture; fourth, free-ranging livestock; and, fifth, a socio-cultural crisis influencing a decline in conservation values (Susanti et al, 1997). Furthermore, many villagers reported confusion over the laws surrounding KKW, given changes in classification.<sup>11</sup>

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<sup>11</sup> For instance, many villagers were unaware that according to the law regarding Protection Forests (*hutan lindung*), they have the right to harvest non-timber forest products such as fruit, nuts, and

To improve the sustainability of forest management, participants recommended:

- strengthen and/or develop Partnerships for Forest Conservation (KMPH) which would work closely with the government in enforcing protection of KKW, develop and implement management plans, and encourage planting of agroforestry gardens to reduce dependence on KKW's forest;
- conduct another series of community-level dialogues to discuss the outcomes and recommendations of the workshop as well as general forestry policies for the KKW, led by the forestry service, NGO's, and other relevant agencies.

### *Livestock Management*

As the designated priority development sector in East Sumba, large livestock has the potential to earn greater income for the district and improve the livelihoods of farmer-pastoralists. The island's grassy savanna provides for good pastures and livestock rearing has a strong cultural tradition in Sumba (Malo and Riwu, 1997). Researchers and workshop participants identified several problems that hinder effective management: extensive, free-ranging management traditions; lack of separation between pasture land and agricultural fields; limited grasp of relevant technology (such as artificial insemination); unequal livestock ownership; invasive weeds and seasonal burning that reduce pasture productivity. Although laws have been enacted to address these problems, limited understanding and/or acceptance have hampered implementation by communities. Recommendations included:

- socialization of relevant livestock management laws through extension staff, village government, LKMD, church leaders, and NGO's;
- training in livestock management and in usage of technical apparatus involving village government, livestock agency, LKMD;
- establishment of demonstration plots incorporating multiple-use, high-nutrient fodder species involving the Forestry Service and above stakeholders.

### *Dry-Land Agriculture and Declining Soil Productivity*

The majority of farmers in and around KKW are still oriented towards producing food to cover their own household's needs (i.e. subsistence); farmers in many areas still practice short fallow rotations and only a few villages have fully succeeded in implementing soil conservation measures (Rasi et al, 1997). Limiting biophysical factors such as the semi-arid climate, mountainous topography, and fragile soils coupled with farmers' limited technical knowledge and skills have contributed to declining soil productivity and, consequently, declining yields. Pest outbreaks, free-ranging livestock (that raid crops and gardens), and climactic perturbations often lead to food shortages. Another issue discussed was the farmers' disincentive for investing in longer term soil

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medicinal plants.

management practices given the lack of clear land ownership.

Participants at the workshop recommended taking the following steps:

- formation of work groups aimed at community self-help with support from the agriculture service, conservation sub-section, Tananua, etc.;
- issuance of land ownership certificates led by BPN in cooperation with BAPPEDA, forestry service, and community members;
- separation of agricultural fields from livestock rangeland and implementation of soil conservation measures led by the above agencies and LKMD.

### *Gender and Women's Participation in Managing and Using Natural Resources*

The role of women, especially in natural resource management, has emerged as a critical component in all stages of development. Women in East Sumba, as in many parts of the world, run the household and thus have the primary responsibility for food security, collecting fuelwood, and managing household finances. Yet, while women retain access to natural resources management, their level of control (i.e. role in decision-making) is limited (Uran and Wilahuky, 1997). Recommendations reached at the workshop included:

- workshops on gender for communities, NGO and government staff using staff from Tananua and other NGO's;
- training in agroforestry for male and female work groups led by the above stakeholding institutions as well as the forestry service and agriculture agency.

Note that more in depth research involving techniques that ensure confidentiality (such as focus group discussions or semi-structured interviews) is needed to fully understand the links between culture and gender before the full potential role of women in natural resource management in East Sumba can be understood, much less realized.

### *Local Traditions and Views on Using and Managing Natural Resources*

Residents of East Sumba traditionally viewed the forest as a sacred place honored by ritual in line with *Marapu*. Through strict observance of rights and regulations, communities effectively managed natural resources usage and may have contributed to the conservation of large tracts of primary forest. However, due to major socio-cultural change precipitated by market and state penetration, a decline in the role of *adat* figures, the conversion of the majority of the populace to Christianity, and exposure to new technologies, the primary value of the forest has changed from religious to economic (Ragu et al, 1997). The involvement of religious figures in the discussion contributed to the following recommendations:

- revitalize traditional conservation values through consensus-based, village conferences led by *adat* and religious figures convened by village heads, village groups, and the socio-cultural agency;
- cross visit to sites in Bali and Kalimantan where traditional conservation values

are still strong involving all relevant agencies funded by the Consortium.

### *Inter Agency Coordination in Environmental Management and Community Development*

While the district government is the public agency with the most human and budgetary resources invested in KKW, their capacity to implement integrated, bottom-up development planning is limited. Although the various line agencies at work in and around KKW (agriculture, livestock, forestry, estate crops) share the same broad goals of sustainable natural resource management and community development, interagency coordination is plagued by sectoral allegiances because of different institutional perceptions, orientations, and priorities. Planning coordinated by BAPPEDA is done at a macroscopic level and the decisions and recommendations made at annual district level coordination meetings often do not reach the village level until the implementation of a given project begins. When integration problems become manifest at the village level, the designated coordinating body, LKMD, does not have the influence and resources to fully coordinate the line agencies.

LKMD is also responsible for providing an institutional conduit through which communities can channel development requests upward to the village and upper levels of government. However, villagers pointed to the limited institutional capacity of LKMD and the long time needed to process community level requests. Although trusted village resources, such as churches and *adat* figures could potentially help LKMD in channeling community requests and concerns upwards, their role in the development process is hampered by lack of official recognition. Recommendations produced by the coordination group included:

- create a Management and Communication Forum for KKW including community members, relevant government agencies, local and international NGO's, and researchers in order to further review and develop workshop recommendations into a comprehensive management plan for KKW;
- develop and implement an integrated approach to community development which links line agencies, institutional strengthening, and women's participation to conservation efforts in KKW;
- revitalize *adat* organizations and strengthen both traditional and formal village institutions (especially LKMD) so that they can participate directly in the planning, management, and protection of the reserve.

### **Progress Made in the Two Months since the Workshop**

The recommendations described above reflect the energy and enthusiasm generated among participants during the joint planning seminar. Each institution indicated its intention to follow-up on the commitments made during the workshop.

In the ensuing two months, NGO actors in KKW such as Koppesda, Tananua, Birdlife, and WWF recruited new staff to cope with workshop commitments and new requests for similar research approaches. A multi-agency, participatory mapping of land-

use and forest boundaries in the villages bordering KKW was set to begin in mid-October. Following up on plans made at the seminar, Koppesda, international and local NGO's (EWC, WWF, BLI, Tananua) are working to incorporate satellite technology (Global Positioning System or GPS), a training for participants from relevant government agencies (forestry, land issues, conservation sub-section), and a participatory methodology involving village government and farmers.

Koppesda took the lead in documenting the workshop and substantive areas of the research. Following the immediate dispersal of follow-up plans, team members began editing and preparing the substantive papers for publication as seminar proceedings (Mulyana, ed., 1998). These proceedings will be instrumental in providing a basis for collective action with regards to the Communication and Management Forum for KKW, which planned to convene in December.

As an indicator of their success in East Sumba and Wanggameti, key partners in that effort have received requests from other local governments in West Timor and West Sumba for similar applications of the research and convening approach to managing protected areas. Koppesda is collaborating with WWF in the Mutis Nature Reserve in West Timor to do participatory research on livestock's socio-economic importance to communities and their impact on forest ecology (Lentz et al, 1998). Following that effort, Koppesda will be collaborating with Sumba's Conservation Sub-Section, Tananua, and Birdlife in an effort to apply a similar approach to the Langgaliru-Manupeu Nature Reserve. The lessons learned from KKW's approach will have to be adapted to these new contexts given the new areas' respective levels of market integration and cultural integrity, their larger targeted area and population size, and the level of access local partners have with community and upper level contacts.

Nevertheless, several factors have generally stalled implementation of the follow-up plans among government, village, and NGO stakeholders in and around KKW. Government stakeholders stressed at the workshop that since funding had already been earmarked for the present fiscal year, large-scale follow up might not be possible until 1999. While upland farmers and village heads remain enthusiastic about the workshop's results, they became preoccupied with more pressing problems following the meetings: a long dry-season precipitated by weather effects of El Niño caused early food shortages among villagers and cattle losses due to drought.

NGO participants, such as Koppesda and Tananua, have worked to redefine their roles in the wake of the research and convening process. Koppesda's original mission was to mobilize stakeholders through research and convening, but they must now reconsider their continued involvement in and around KKW. Tananua's traditional role focused on community-based, farmer-to-farmer extension, yet their involvement in the KKW effort has forced them to think and act on a larger scale. Finally, NGO participants must decide amongst themselves who will take the lead in following up research recommendations.

#### IV. COMMENTS ON METHODS AND PROCESS

The research and convening effort in KKW is part of an on-going international effort to generate and implement lasting alternatives for community based natural resource

management (CBNRM). The sections that follows detail some of the challenges encountered and lessons learned with particular emphasis on methods and strategies for facilitating collaborative planning processes. The principles of participation, stakeholder inclusion, and inter-agency cooperation guided design and planning. Nevertheless, the challenges in implementing these ideals were a source of creative tension that led to innovative responses by participants. Lessons learned during the research process include insight into the role of research in mediation, techniques for building relationships among stakeholders, methods for building local capacity, and cognitive shifts experienced by participants.

### **Methodological Challenges**

#### *Notions of participation*

Socio-economic, gender, and political structures all challenged the ideal of equal participation. At the village level, Tananua provided invaluable assistance in approaching contacts such as village heads and farmer leaders; in turn, these figures aided in mobilizing support for the research. However, differential participation posed a problem in the application of PRA where class, clan, and caste distinctions between villagers sometimes became manifest in the domination of discussions by a few influential nobles. Strategies to overcome the challenge included:

- directing questions towards silent audience members;
- drawing aside dominant participants for private discussions;
- breaking up large groups into more manageable sizes;
- focus groups and individual interviews.

In spite of the important role women play in natural resource management, they were often difficult to involve in the research process because they frequently were too busy to attend; when women did attend meetings, they often deferred to males in the audience. Strategies employed to involve them included:

- requesting the presence of women when extending invitations to discussions;
- including women researchers in each team;
- directing questions towards women in the audience.

Still, the frequent deference to men in public fora pointed to an unfulfilled need to utilize separate settings attended by women alone.

KKW's multi-jurisdictional nature demanded both the vertical (i.e., intra-agency) and horizontal (i.e., inter-agency) cooperation of government officials. Approaching influential, upper-level government officials (such as the district head, his assistant, line-agency heads) early in the planning stages of the process was a key to gaining support for the research and to ensuring they fully understood its goals and intentions. Once top officials were engaged, they took it upon themselves to make sure their subordinates followed suit. The importance of inter-agency cooperation was stressed at all meetings;

inter-disciplinary and inter-agency research teams fostered relationships among members of different agencies. Overall, researchers were fortunate to enjoy wide support from government officials in stimulating interest, aiding with logistics, and overcoming potential saboteurs. To maintain their commitment throughout the lengthy process, sustained, frequent, and open socialization proved instrumental; when in the field, the shuttling team informed them of progress, reported difficulties, and relayed questions.

#### *Stakeholder (non) involvement*

In Indonesia, the moving of upper-level officials between islands and around provinces occurs with alarming frequency, threatening the progress made with the leadership in any one agency. A challenge in working with government officials lies in the imminent possibility of relying on individuals who, in following bureaucratic duties, may be replaced with someone less supportive. Preparing for such eventualities, the core team made inroads with at least one other official in a given agency (usually the agency-affiliated researcher), in the hope that he or she could become a catalyst for reform should the leadership change. Nonetheless, since the research ended in July, several influential officials (including key members of the Forestry Service and the district government) have been moved to other areas in Indonesia.

Although the process included the vast majority of the stakeholders from the beginning of the process, it proved very difficult to include *all* of them. During the site selection phase, the absence of reliable maps meant the accidental exclusion of five villages that border the KKW on the western side. However, the engagement of the district head from Tabundung (under whose jurisdiction they fall) has ensured that these villages will be included in planning follow-up efforts.

Another key stakeholder who proved less than active in the process was Birdlife International whose single-issue advocacy (birds) and upper-level lobbying occasionally undermined the early efficacy of the network in E. Sumba. Furthermore, their workshops with policy-makers rarely included community members; discussions were often poorly informed of conditions in the villages surrounding KKW, in effect further threatening the villages with translocation. Coordination between local NGO's (i.e. Tananua), Koppesda, and WWF with BLI proved difficult given the latter's distant location from Sumba.

Finally, Broken Hill Proprietaries (BHP), the international gold-mining firm, operated on national (even presidential) level connections to obtain permits to begin mineral sampling within the boundaries of KKW. In bypassing district, even provincial level officials, BHP's shadowy presence has raised many questions about their long-term interests and plans for the area; their non-participation in the joint planning process is a possible threat to the future management of the reserve.

#### *Inter-Agency Cooperation: Different Backgrounds and Attitudes of Team Members*

The benefits of an inter-disciplinary research team are manifold: providing insight into complex problems; strengthening relationships between members of different agencies; complementing other member's disciplinary strengths and weaknesses. However, in such a situation, individual attitudes and institutional allegiances can prove

extremely trying to the PRA practitioner. Symptoms of this problem included:

- unwillingness to openly discuss or constructively criticize one's own agency;
- adherence to an ingrained mode of communication (lecturing and scolding);
- refusal to listen to advice from younger, "less-experienced" team members.

Indeed, such problems initially posed a threat to the cohesion of some of the research teams.

Overcoming differences in attitude required repeated stressing of principles embedded in participatory research -- equality, openness, patience, and the ability to listen. Over time, a change took place in many team members: for example, after the field research several government affiliated team members admitted that the villagers themselves were not solely to blame for project failures -- some of the fault lay in their own agencies' community approach. Constructive, though occasionally critical comments at the workshop demonstrated their commitment to government reform.

The presentations at the area level plenary session revealed occasional bias and a stubborn inability in some participants to see beyond the ideologies of their agencies and disciplines. This led in some cases to rather harsh preliminary judgements and attempts to confirm classic myths about rural/upland cultures (i.e., the evils of shifting cultivation, criticism of Sumbanese traditional religious beliefs and social practices, etc.). More careful selection, improved training, and stronger advising -- both in fieldwork and in write-up stages -- should help address these concerns in the future.

## **Lessons Learned**

### *How to Build Capacity Among Communities and Government Agencies*

The participatory research methodology chosen, PRA, emerged as a very effective tool in equipping community members with analytical and presentation skills. Researchers' skillful facilitation encouraged participants to link cause and effect, draw conclusions, and formulate recommendations. Some additional techniques included:

- asking participants to take part in facilitating discussions, first in small group discussions and then in large plenary sessions;
- rehearsing with community representatives to gain public speaking skills and confidence for presenting in national language (*Bahasa Indonesia*);
- ensuring deeper understanding of plenary session goals and results through socialization and follow-up meetings.

These last three strategies were especially relevant given that community members would represent themselves in front of a large audience at the second joint planning seminar.

PRA also offered government participants the knowledge and experience in a bottom-up development planning methodology. As an indicator of the success of this methodology, the Forestry Service requested that Koppesda use PRA to solicit community input into its planning for priority reforestation sites in East Sumba.

## *The Role Of Research In Mediating Multi-Party Decision-Making Processes*

In conducting participatory research in sites in eastern Indonesia, the Conservation Working Group of the NTCDC endeavors to engage diverse stakeholders around a particular site, to build capacity among marginalized communities, and to convene stakeholders in a collaborative learning and negotiating process. In addition to providing data that informed public discussions, the research and convening approach succeeded in engaging a wide spectrum of stakeholders committed to finding long-term strategies for managing KKW.

Finding such strategies required a sustained process of learning.<sup>12</sup> The research and learning process focused attention on an objective analysis of problems and thus tended to mitigate narrow positions on the issues, historical and cultural differences, as well as power imbalances among stakeholder groups. In addition to providing a means to build skills and capacity among marginalized upland communities, PRA became a vehicle for mobilizing villagers to overcome perceived differences, form coalitions, and collaborate on planning strategies -- prerequisites for multi-party decision-making.

The meetings convened to present research results lent the villagers greater, mediated access to decision-makers. Moreover, these meetings provided fora in which all parties could come to a better understanding of the issues, sources of conflict, and of one another's interests. In this setting, researchers acted as facilitators to stimulate dialogue between stakeholders and to guide them towards generating joint-gains solutions.

### *How to Build Relationships Among Stakeholders*

What brought people together? The answer to the question can be summed up in a variety of approaches applied in E. Sumba, encompassing formal and informal gatherings, shuttle diplomacy, and the use of higher levels of legitimacy.

In utilizing formal discussion sessions, plenary meetings, and ceremonies, researchers generated dialogue and stimulated introductions. In these formal gatherings, it was important that researchers maintained a neutral stance as a third party. Thus the research findings were presented for discussion among stakeholders, not as preconceived conclusions or recommendations.

Less formal gatherings played a significant role in creating a more relaxed, friendly atmosphere. Informal approaches included festive occasions (such as dance parties following long meetings at the community plenary in Ngonggi) or demonstrations of researcher commitment (like helping villagers harvest rice in Ramuk).

Shuttle diplomacy was used to facilitate meetings outside of the public realm and often occurred between two parties, most frequently between researchers and government

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<sup>12</sup>Many works on conflict management break the process into six stages: 1) understanding the nature of the conflict; 2) designing the process; 3) encouraging dialogue; 4) generating options; 5) facilitating agreement; and, finally, institutionalizing agreements. Although presented in a linear fashion, the process may jump around in revisiting past stages, simultaneously fulfilling two, etc. (see Fisher et al, 1994). See Kai Lee (1993) for an invaluable work on the integration of learning into natural resource management.

officials. These meetings were low-key and often conducted in private dwellings with the goal of socializing schedule changes, research updates, or fielding questions from communities.

Finally, researchers were able to elevate the research in Sumba to a higher level of legitimacy by encouraging key stakeholders to attend events sponsored by the NTCDC, Cornell University, World Neighbors, etc. These higher profile meetings provided positive reinforcement for key stakeholders' involvement: for example, the assistant to the district head was invited to a national conference on bottom-up development planning in the city of Bogor where his presentation of the research process was well-received.

### *Cognitive Change in Participants*

The KKW is a multi-jurisdictional entity: it is spread throughout 3 sub-districts and 15 villages. Many government and community representatives reported gaining new insights into relationships during the course of the research. In encouraging relationships among government officials across political boundaries, researchers facilitated government linkage around the issue of natural resource management. In coalition-building exercises among communities, village participants identified commonalities that transcended familial, clan-based allegiances. Conflict management literature identifies a cognitive shift from positions to interests in participants engaged in successful negotiation (Fisher and Ury, 1983); in E. Sumba, the shift went from relationships defined in terms of political boundaries and blood ties towards the formation of bonds based on the recognition of shared experience and common goals.

A change in the research's initial process design signaled the mental change in the researchers, from whom it spread to other partners. Originally, two community plenary sessions were planned, one at each sub-district level, a feature that risked reifying existing administrative borders and clan allegiances. When an alternative arose -- one area level plenary session -- the team coordinator set about socializing the idea with inter-agency and community partners. When inviting community representatives to the plenary session, researchers in the field emphasized the need to think collectively and shift their focus from the village to the area. Emphasized repeatedly at the plenary session itself, the idea was received enthusiastically by community participants and acknowledged gratefully by government observers.

### **Conclusions**

The experience in the uplands of East Sumba represents a case of informed, inclusive decision-making in the use and management of natural resources achieved through participatory research and patient facilitation of collaborative planning. Although it remains to be seen whether the collaboration will continue into the implementation phases, this inclusive planning and learning process has helped create the relationships needed to address use and management problems if they arise.

Practitioners in East Sumba were fortunate to work within a mature institutional network, the Conservation Working Group of the NTCDC. The inter-agency relationships nurtured in this context through cross-visits, strategic planning meetings, and

trainings in conflict management, supplied the basis and legitimacy for creating a smaller cooperating network in and around KKW. Furthermore, the knowledge and experience shared by several key figures operating within the CWG provided insight into the priority site's main problems and identified stakeholding institutions so that early planning was more inclusive and better informed.

The research and convening process in East Sumba demonstrated the need to engage a broad spectrum of stakeholders early in planning, a variety of methods for community and government capacity building, and the relevance of research to resolving environmental conflicts. While the institutional context, biophysical, and cultural conditions are unique to East Sumba, it is hoped that partners in other contexts will be able to learn from the researchers' experiences and their lessons learned. Given the expansion of areas devoted to conservation<sup>13</sup>, protected area managers will inevitably face complex, multi-stakeholder management issues. These issues will assume greater importance and immediacy, especially in equatorial regions where urgent conservation of biodiversity must accommodate the pressing needs of communities adjacent to protected areas.

#### Appendix I: Glossary of Terms and Abbreviations

<i>Adat</i>	custom, tradition; customary law
Banpres	Bantuan Presiden (Presidential Aid)
BAPPEDA	Badan Pembangunan Daerah (Agency for Regional Development)
BHP	Broken Hill Proprietaries
Birdlife	Birdlife International
BPN	Badan Pertahanan Nasional (National Land Bureau)
BPS	Biro Pusat Statitik (Central Bureau of Statistics)
CBNRM	Community-Based Natural Resources Management
CPECM	Cornell Program on Environmental Conflict Management
CWG	Conservation Working Group of the NTCDC
DPD	Dinas Pendapatan Daerah (Area Income Agency)
DPKT	Dinas Perhutanan dan Konservasi Tanah (Reforestation and Soil Rehabilitation Service)
EWC	East West Center, University of Hawaii
FAO-APAN	Asia Pacific Agroforestry Network of the United Nations Food and Agriculture Organization
IDT	Instruksi Presiden Desa Tertinggal (Presidential Instructions on Underdeveloped Villages)
GIS	Geographic Information Systems
<i>kabisu</i>	name for "clan" in Sumba

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<sup>13</sup> According to a recent count, seven percent of the world's surface area is classified as a protected area (Borrini-Feyerabend, 1996).

<i>kabupaten</i>	lit. regency; district
<i>kecamatan</i>	sub-district
Koppesda	Koordinasi Pengkajian Pengelolaan Sumber Daya Alam (Natural Resource Management Research Team)
KKW	Kawasan Konservasi Wanggameti (Wanggameti Conservation Area)
KPH	Kelompok Pengaman Hutan (Forest Protection Committee); has now become known as Kelompok Mitra Pelestarian Hutan (Partnership for Forest Conservation)
<i>Marapu</i>	indigenous religion of Sumba
NGO	Non-Governmental Organization
NTB	Nusa Tenggara Barat (West Nusa Tenggara)
NTT	Nusa Tenggara Timur (East Nusa Tenggara)
NTCDC	Nusa Tenggara Uplands Development Consortium
PMD	Pembangunan Masyarakat Desa (Agency for Community and Village Development)
PRA	Participatory Rural Appraisal
SSKSDA	Sub-Seksi Konservasi Sumber Daya Alam (Natural Resources Conservation Sub-Section)
Tananua	Local Rural Development NGO in Sumba
TGHK	Tata Guna Hutan Kesepakatan (Prescribed Consensus-Based Forest Utilization)
WWF	World Wide Fund for Nature

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