PAPUA NEW GUINEA

Conservation by Communities of the Tonda Wildlife Management Area

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INTRODUCTION

Tonda Wildlife Management Area on the southern extremity of Papua New Guinea's border with Indonesia is PNG's largest and oldest conservation area and its only Ramsar site. For over 20 years it has been managed by a committee of indigenous leaders drawn from 20 village communities. While this group has provided strong local level protection of land, lack of support to the committee has meant that the full potential of community management has not been realised. Furthermore threats on a regional and international scale cannot be easily dealt with by current community institutions.

This case study, as well as focussing on the development of Tonda WMA, will look at a recent WWF project to initiate a cross border conservation area linking with Wasur National Park in Irian Jaya with Tonda and developing bioregional management based on community planning across the region. It draws from work by a joint WWF and PNG Department of Environment and Conservation (DEC) team through 1996 and early 1997 which looked closely at current conservation management structures in the region, conducted participatory planning and sought to develop the foundations for a further program.

> "The [Wildlife] Management Area is a very good thing that has happened in our place. It is a real protection to our resources. It helps us to look after our animals and environment. The real problem is how we can preserve it in the long run"
> *- Jacob Gagam, Wando Village May 1996*

THE CONTEXT

New Guinea, the world's largest tropical island, is not usually associated with savanna woodlands. And yet this island of lush rainforest is also flanked along its south coast by important monsoonal savannas. Open acacia woodlands, grasslands and melaleuca swamps extend across a broad area from the Merauke River in the Indonesian Province of Irian Jaya to the Fly River mouth in Papua New Guinea (PNG).

The South New Guinea savannas cover approximately 2.5 million hectares on the New Guinea south coast, or Transfly Region, straddling the PNG and Indonesia border. While the remainder of PNG has rugged topography from intense tectonic activity, the southern Fly platform is remarkably flat with a maximum elevation of 46 metres and has been stable since Jurassic times being the northernmost part of the Australian plate (Paijmans, Blake and Bleeker 1975). The Oriomo Plateau, running east-west across this area into Irian Jaya, has been cut by nine rivers that drain southwards into coastal plains. In the wet season (November to March) these plains become extensive shallow lake systems. To the north of the Oriomo Plateau are the floodplains of Fly River, PNG's largest river by volume.

With around 1500 to 2000 mm of rain per annum this ecoregion is the driest in New Guinea. And yet the South New Guinea savannas have some of the most extensive and diverse wetlands in the Asia Pacific - almost uniformly in excellent condition. Wetland types in the region (according to Ramsar classifications) include:

- *sea grass beds* - Oceania's largest sea grass beds provide habitat for the world's largest population of dugongs *(Dugong dugon).*
- *coral reefs* - in Torres Strait south of the Fly River outfall.
- *sand beaches* - along the Arafura sea coast.
- *estuarine waters* - at the outfall of the Merauke, Mai Kussa and Wassi Kussa Rivers.
- *intertidal forested wetlands* - small areas of mangrove are important as commercial prawn breeding beds with nipa palm stands also found.
- *permanent and seasonal rivers* - coastal rivers have considerable fish diversity[1] and some endemism as well as important barramundi breeding sites.
- *swamps of the coastal river floodplains* - the Merauke, Bensbach and Wassi Kussa Rivers in particular have large wet season lake systems that inundate sedge grasslands and paperbark (*Melaleuca* spp.) woodlands while the Suki region on the Fly River floodplain is permanently flooded.
- *permanent freshwater lakes* - such as Lakes Daviumbu on the Fly River and Rawa Biru in Wasur harbour high aquatic plant diversity and provide bird migration stop-overs.
- *freshwater swamp forests* - flooded gallery rainforest and paperbark woodlands are common along river courses in the wet season.

A rich mosaic of vegetation types clothes these landforms. Dry grasslands and savanna woodlands dominated by *Acacia* and *Melaleuca* species are widespread. These are interspersed with mangroves, littoral forest, monsoon forests, gallery rainforest, swamp woodlands and herbaceous communities. These terrestrial habitats are similar in species and structure to those of northern Australia as a result of Pleistocene land connections. Although poorly studied, more than 2000 species of plant are expected to be found in the area (Johns 1995).

Habitat diversity, geological age and land bridges with Australia have contributed to an equally rich faunal collection. The area is renowned for spectacular birdlife - with large flocks of migratory birds as well as New Guinea residents. To date, over 239 bird species have been recorded (roughly the same number as found in the whole of France) with many more expected (Craven and Bowe 1992). The region is a globally significant over-wintering ground for migratory waders and waterfowl from Australia and the Palaearctic. It is also home to numerous New Guinea and a handful of local endemics - such as the Fly River Grassbird *(Megalurus albolimbatus),* Zitting Cisticola *(Cisticola juncudis)* and the Spangled Kookaburra *(Dacelo tyro).*

It has equally high mammalian diversity and endemism with up to 80 species expected (Craven and Bowe 1992). These include flying foxes, bandicoots, cuscus, wallabies, echidna and marsupial rats. Of special significance are a number of localised endemics including the

[1] Over 99 fish species are found in the Fly River and 63 in the Bensbach (Allen 1991, Osbourne 1994) making this one of the most important areas in Nwe Guinea for fish conservation.

Chestnut Dunnart *(Sminthopsis archeri)*, the Oriomo subspecies of the red-legged Pademelon *(Thylogale stigmatica)* and New Guinea's largest marsupial carnivore, the Bronze Quoll *(Dasyurus spartacus).* Many of these are susceptible to habitat change. The region is also a significant breeding area for two of New Guinea's six turtle species while salt and freshwater crocodiles are relatively common but threatened by overharvesting.

With the exception of perhaps the Bensbach and Merauke River systems, the south New Guinea savanna country remains very poorly understood by western science. Nevertheless, what little is known illustrates remarkable species diversity and uniqueness as well as close associations with Australia. It is recognised among the IUCN centres of plant diversity, is a Birds International endemic bird area, and is of highest priority for conservation in PNG and Indonesian national biodiversity planning.

Growing Pressures

Currently, the major threat is invasive species that have been introduced since the turn of the century mostly into Indonesia and which are now spreading into PNG. Rusa deer *(Cervus timorensis)* are found in large numbers across Wasur and into the Bensbach and Morehead Rivers. According to the people of Wando village, they have "moulded the whole area", causing change in herbaceous species due to soil compaction. Wild dogs are reducing native marsupials populations and the recently introduced climbing perch *(Anabus testudineus)* is raising concern as it moves across into PNG river systems. Weeds are having an equal effect with water hyacinth *(Eichhomia crassipes)* now found in the Merauke area of Indonesia and the Fly River in PNG.

Community use of fire has increased recently with some concern that this is changing vegetation structure. Melaleuca scrub is extending to engulf grasslands and bushfires have escaped across into Indonesia with serious effect. Aboriginal firing patterns in northern Australia have recently been shown to maintain biodiversity by increasing habitat fragmentation (Bowman 1995). Whether this is true in southern New Guinea is yet to be demonstrated. Regardless, fire management using indigenous practises needs to be reexamined and fires managed carefully.

Industrial development is also now impinging on this inaccessible region. Heavy metals and silt are being concentrated in the Suki wetlands from effluent from Australian managed Ok Tedi mine in the upper Fly catchment. Logging is proposed for the wetter (and unprotected) forests of the Oriomo River and there has been some test drilling for oil with consequent chemical spillage. Perhaps more significant in the longer term is climate change. With elevations in the southern floodplains of only metres above sea level, this whole portion will be sorely affected by any sea level rise.

COMMUNITY INVOLVEMENT

With a very few exceptions, the people of the South New Guinea savanna region come from indigenous communities living in villages or small hamlets on ancestral land. Around 12 000 people live in the Papua New Guinea portion and a further 3 000 in Wasur in Indonesia. This area then is one of the most sparsely settled in PNG with an average density in the west of around 0.6 persons per square kilometre. In a country with one of the highest population

growth rates in the Pacific, the TransFly is also unusual in having no significant population growth or migration.

Culturally, this region is remarkably rich. The island of New Guinea has the highest linguistic diversity on earth with over 1000 languages - a feature that is amply reflected on the south coast. Along the 300 km coastline of the TransFly are no less than 14 distinct languages and more than 25 dialects[2]; each of these also represents a distinct cultural group.

The TransFly people are primarily subsistence farmers. In contrast to their sago processing cousins on the Fly River (including the Suki), their economy is based largely on yam cultivation and hunting. They are further distinguished by unique paperbark architecture and by the presence of unexplained extensive prehistoric mounds presumably used for agriculture (Harris and Laba 1982).

The remote nature of the area and poor rainfall and soils have left it largely untouched by western industrial development. Cash income is evenly low with very limited access to cash earning opportunities. Perhaps the areas around the government stations and Bensbach Lodge being slightly better off. Government services are severely restricted, health conditions are concerning and health services are almost non-existent. Tourism centred around a hunting lodge on the Bensbach River is small but steady and provides a number of opportunities. Local communities are keen to increase their trade in wildlife and forest products (eg. deer meat, crocodile skins, candlenut, saratoga etc) both to tourists and through markets in Daru and across the border. There is also a growing cross border trade and plans within Indonesia to designate the Merauke region as a “growth triangle” for attention in future national planning initiatives.

Resource Management in Papua New Guinea

In contrast to the development constraints in the region, recognition of indigenous rights to land are almost total. There can be few other places on earth where indigenous rights are so clearly respected as in PNG - a fact that has serious implications for wetland management.

The Constitution of the modern state of Papua New Guinea guarantees the right of customary communities to own their land and the resources in it (with the arguable exception of minerals). A previous colony of Australia and before that of Britain and Germany, PNG became independent in 1975. It now has a Westminster style democracy, a very active - if volatile - multi party system and an open press and judiciary. These constitutional and legal guarantees to land rights ensures that a remarkable 97 per cent of the country’s land area is now controlled by indigenous communities. As a result, major development decisions which impact on community resources (including wetlands) must be undertaken with the participation and consent of landowning communities.

Indeed, experience to date shows that for these developments to last and be adopted elsewhere, they must be driven by the communities themselves or be based on genuine partnership between communities and outside agencies. Furthermore, it demands that any activities must take place in a way that fits comfortably with PNG methods and community institutions. A number of these aspects are described below:

[2] From west to east these include the Kanum, Marind , Marori, Yei, Tonda, Rouku/Nambu, Peremka, Suki, Pahatouri, Mutum, Bine, Gizra, Gidra and the Kiwai.

- *resources are managed at a clan level* - The unit of resource management in PNG is generally very small - a clan, sub-clan or family group or occasionally a dialect group as with the TransFly. Agreements must be negotiated clan by clan.
- *intersecting rights* - Resources in one location are not always held by only one clan but may also be controlled by a number of groups with intersecting rights. One group may hold more entrenched (primary) rights of ownership of land bestowed over generations of occupation while another group, perhaps neighbours or new migrants, may have obtained granted (or secondary) rights of habitation or use of resources such as fruit trees. These rights can also vary over time (Brown, Brookfield and Grau 1990) and require broad ranging and continuous consultations over land use matters.
- *collaborative leadership* - Leadership in Melanesia is generally the product of group assent and is seldom hereditary. Decision making tends to operate on a modified consensus basis with primary right holders having proportionally more influence than secondary right holders, again requiring extensive consultation.

This set of features has necessitated approaches to resource administration that are centred on indigenous consent, partnership and continual negotiation. Forestry operations, for instance, may only proceed if agreed to by representative resource owner groups. Mining operations must be conducted through "development fora" with strong landholder representation. And the innovative "Wildlife Management Area" (WMA) and "Conservation Area" concepts allow for a form of conservation area where management rules are defined by resource owning communities according to local custom and needs as well as conservation priorities. National Parks have proven a limited success in PNG due to the difficulty of the state acquiring customary lands and the lack of management capacity to protect purchased lands[3]. WMAs, by contrast, seek to address this by “attempt[ing] to develop conservation on a customary basis and use traditional methods of resource management” (Eaton 1986).

Tonda Wildlife Management Area

Tonda Wildlife Management Area, adjoining the Indonesian border, is the largest and the oldest WMA in PNG. Established in 1975 by the PNG Department of Environment and Conservation (DEC) in partnership with local communities, it is seeks to conserve 590 000 ha of savanna, protect wildlife species from overhunting and attract sustainable development. A game lodge (Bensbach Lodge) was negotiated and built on the Bensbach River at the same time as the WMA.

Tonda WMA, along with other Wildlife Management Areas, is a fascinating experiment in indigenous management of wetland areas. It is entirely managed by an all male committee of indigenous community representatives (Tonda Wildlife Management Committee) according to a set of by-laws which they helped to developing. The initial rules of 1975 have been amended at least four times and now provide for the issuing of licences (commercial, tourist and individual), restrict the use of guns, sets limits on size and sex of fauna taken and establish areas within which hunting is restricted. The rules also set licence and royalty fees on hunted animals and regulate the handling of monies received. Royalties are collected by

[3] Indeed in some cases, such as MacAdam National Park in the Eastern Highlands, National Park status has led to a reduction in consrvation management as neighbouring communities cut gardens on land that no longer have resident landowners to protect it.

the Lodge Manager on all animals caught and are paid in equal proportions to the landowner on whose land the animal was taken and to a trust account for development and welfare in the area. Licence fees and royalties have averaged K20 000 in the years between 1978 and 1987 (Eaton 1986). The customary owners are guaranteed the right to continue using the resources of their wetland on a sustainable basis for livelihood and income generation.

Landowners are generally appreciative of the WMA and the developments that have resulted from its presence. “We have in our mind that we want to preserve and improve what has been fading away” said one villager on the Bensbach River. The Conservation area provides maintenance of their environment and its services, protection of cultural and spiritual sites and equally importantly employment and income generation opportunities. Perhaps even more significant is that it has increased the feeling of control that communities have over their land and resources.

Bensbach Tourist Lodge is a prime motivator in maintaining the WMA and provides a significant model of corporate support for conservation. It is one of the more successful tourism operations in a country where visitation is not well developed. In 1996/97 the expatriate Australian run lodge received an estimated 1000 bookings (Brumley pers comm). Apart from the government, it is by the far the most significant employer in the region, has brought a number of services (including airstrips, trade store and mail) and actively assists the WMA Committee in performing their duties.

While landowners recognise the importance of the Lodge to the area and the WMA, they have continued to express concerns that it is not open to local shareholding and that its operations do not provide sufficient developmental benefits. In 1996 this lead to some landowners blocking the airstrip at Bensbach and stopped tourists from entering. The situation was only addressed a year later after mediation by DEC and local government officers and a compensation payout for land at the airstrip. There is a current proposal for the establishment of a second lodge on the eastern side of the WMA as a specialist fishing operation for black bass. This would alleviate some of the concerns that benefits of the WMA are only accruing to landowners of the Bensbach River region.

The Department of Environment and Conservation has had a interest in the area since helping to establish the WMA. A significant wildlife research and management station was operated at Balamuk in the late 1970’s. Through most of the 1980’s and ‘90’s, however, no government officers have been stationed in the WMA and the buildings of wildlife station had fallen into disrepair. In 1983 one officer reported that “normal yearly operations have entirely arrived at a stop” (Eaton 1986). This has caused some anger among the communities who feel that they have been neglected in their responsibilities to maintain conservation management. “We are just hanging around like we are nobody, like we have no government at all” said Jacob Gagam of Wando Village in May 1996. DEC has since allocated funds for an officer to be placed at Balamuk in 1997 following strenuous landowner requests and the work of the WWF project. They have also established a wetlands working group that will oversee steps to protect PNG’s important wetlands. While communities are eager to have a greater DEC presence in the park, there is some recognition that DEC officers can be paternalistc in their approaches. DEC itself is struggling with a move from a command and control mentality to a service orientation that is more responsive to the needs of their primary client, landholding communities.

Tonda received further protection through becoming PNG's first and only Ramsar site in 1993. While this has done little to change on-ground management to date, there has been a general recognition of the need to improve government commitments to meet Ramsar obligations.

Local government officers stationed through the area have been very supportive of conservation management - recognising the development benefits it has brought and the protection of land rights and resources. As Tewa Karou, officer in charge for Bensbach subDistrict explains - "We are very happy with having the [Wildlife] Management Area. It protects the environment and stops people from being exploited. In other areas where the WMA is not there, all sorts of companies crawl up and take advantage of the people".

Because of its proximity to the sensitive Indonesian border, Tonda WMA is affected by the conditions of the border agreement which restrict the planting of certain crops for quarantine reasons and places conditions on developments. These are overseen by the interdepartmental Border Liaison Committee which occasionally meets at Bensbach Lodge. The TransFly is also home to a number of West Papuan refugees who have fled from political oppression by Indonesia forces in Irian Jaya. Some of these continue to be active with the West Papuan rebel movement, the Organisasi Papua Merdeka (OPM).

The border does not deter poachers from entering Tonda land to lay Nets have been strung across the mouth of the Bensbach River or to take deer, crocodile, wallaby and fish. In response, government officers have impounded and scuttled Indonesian fishing boats and community members have started sporadic surveillance. In desperation, Tonda landowners took the law into their own hands and killed a number of poachers in the mid 1990's. While incursions reduced for some time, the perpetrators were also jailed for murder. Communities remain unclear about their abilities to enforce WMA regulations and are becoming increasingly frustrated at the absence of active surveillance (especially given the region's strategic importance).

Poachers have undoubtedly been entering PNG because of the increased management presence in the contiguous Wasur National Park in Irian Jaya. Wasur was established by WWF Indonesia Program in 1990 in partnership with the Indonesian Department of Forests (PHPA). It encompasses 413 810 ha of wetland and woodland habitats similar to that of Tonda. While indigenous involvement in the management of the park is limited by comparison with Tonda, the Park has achieved greater recognition of *adat* (customary) rights than almost any other conservation area in Indonesia. Rights of indigenous communities to hunt and collect certain animals and plants have been recognised and they contribute traditional knowledge and advice to Park planning. A management plan has been prepared for the Park and is awaiting government approval (Craven and Bowe 1992). The Park is also awaiting approval of an application to become Irian Jaya's first Ramsar site. In a significant move, in principle approval was given by the Governments of PNG and Indonesia at the 1996 Ramsar Conference in Brisbane Australia for the establishment of a cross border conservation area coordinating management between Tonda and Wasur.

Effective community management for conservation and sustainable development is still some way off in the TransFly. The uncertainty that the WMA committee feels in its role means that it rarely meets and that it has found it difficult to enforce management rules. Low education and training of committee members further hampers this. At a broader level, there is an

absence of regional institutions to deal with larger resource management issues such as invasive species and wildfire. A forthcoming integrated coastal zone management program for the savanna coast funded by Australian aid may begin to address this need for regional coordination.

Indigenous Land Management in the South New Guinea Savannas

After hundreds or thousands of years of living in a landscape, indigenous communities often have complex practices for the sustainable management of their land. These systems may appear very different to those of western science - and indeed they may be very hard to see at all - yet indigenous approaches can complement and improve on scientific conservation management in ways that can be much more relevant to landholding communities. Indigenous land management practices often are often well tested, can produce similar results to western approaches, can be cheap, and, through religious or spiritual sanctions, can sometimes be more effectively enforced (see Clay 1988).

The Tonda people of the south New Guinea savannas have a number of resource management approaches that have a parallel effect for biodiversity conservation. These will provide the basis for a more informed management approach in the region (from Ayres 1983; Chatterton et al 1997).

1. **Landscape zoning -** Land is traditionally divided by vegetative and use characteristics into “big bush”; “open bush country”; “open places or clear places”; and “seasonal swamps”.
2. **Areas with entry restrictions** - Certain areas are barred from entry to all or certain parts of the population. Major and minor storyplaces generally have strong restrictions on entry or use including hunting. Origin places, where a clan or moiety is thought to have been created, are often closed to entry or may be entered only on permission of a custodian. Clan lands are restricted to the use of that clan only and those to whom it gives permission.
3. **Areas with activity restrictions** - The areas above also generally carry restrictions on the harvest of wild animals, cutting of forest, planting of gardens or the removal of certain plants. A portion of the Bensbach River has been banned for barramundi fishing since it is a significant breeding site. Other significant sites including old village sites and burial sites which carry restrictions on certain activities such as building and gardening.
4. **Periodic harvesting restrictions** - Seasonal restrictions can be placed on the hunting of animals or the collection of plants. This may be to prevent overuse during stressed seasons or for ritualistic purpose.
5. **Species harvest restrictions** - Certain species, such as crocodile or eagle, have totemic significance and may be barred from hunting. Equally pregnant women are forbidden from eating animals such as crocodile, python and cuscus.
6. **Size limits** - Limits are traditionally placed on the size of some wildlife or fish that may be taken.

Fire control - Fire, while widely used as a management tool, is used with specific controls on when and why they may be lit.

NEXT STEPS

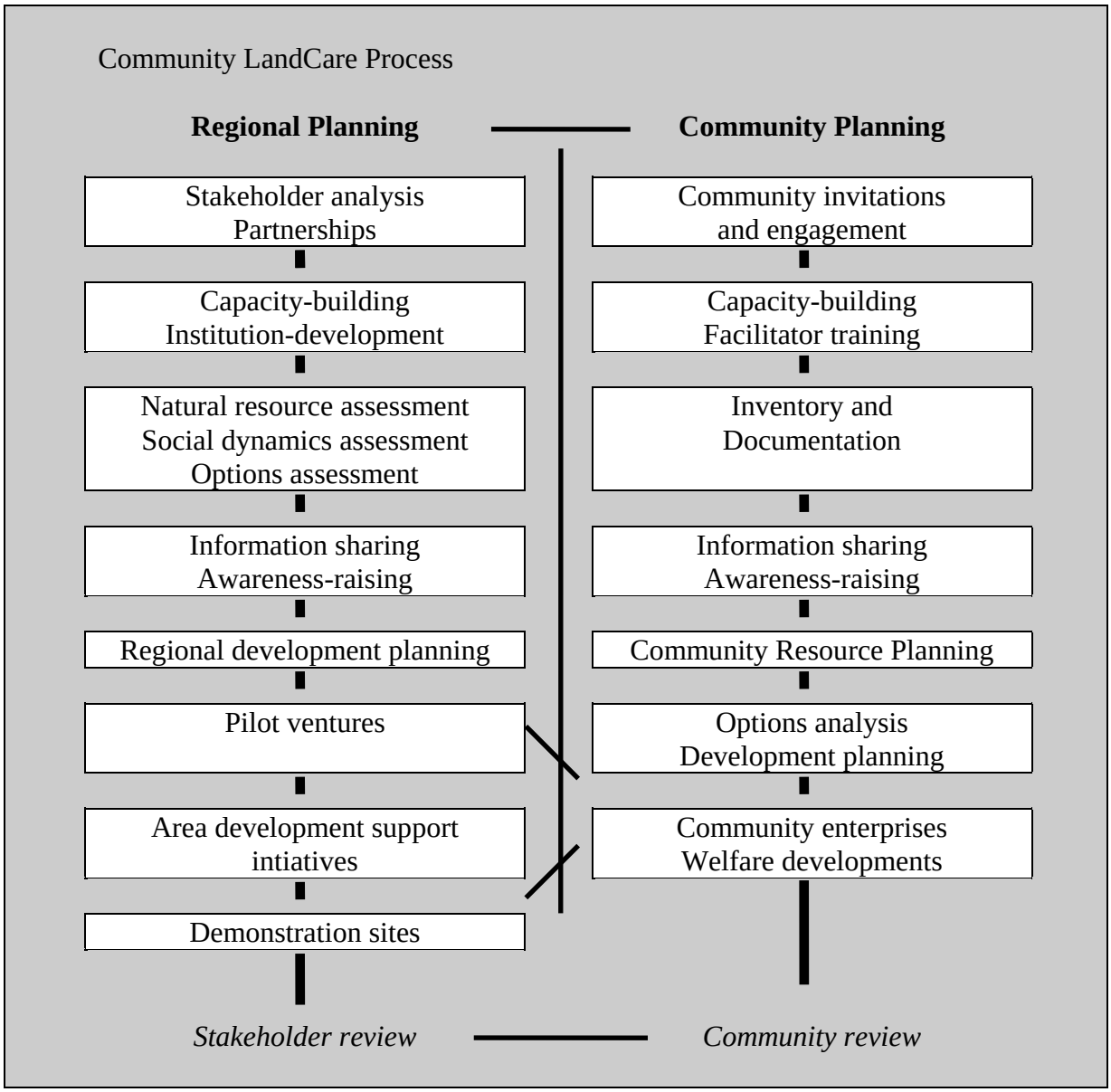
The challenge for the future is to develop community management more effectively across the area. Current institutions, while functional, are not well developed to maintain active management beyond their local area or to address growing regional threats. There is a need to develop regional coordination and to reinforce this with scientific research. While community management has maintained a remarkable level of conservation protection for local areas despite variable government commitment, the low formal education levels of community members and the lack of continuous support has hampered their effectiveness. Communities have expressed the need for support to groups such as WMA Committees to be able to marry traditional resource management practices with the skills of western conservation management.

In order to deal with these issues and improve the level of conservation protection across the entire savanna bioregion, DEC and the World Wide Fund for Nature (WWF) South Pacific Program joined together in 1996 to conduct the Community LandCare project (*Lukautim Graun* in tok pisin- lit: looking after ground). This seeks to address the declining management framework of Tonda WMA, link it more solidly into regional development planning, scale it up across the region and coordinate it with comparable programs in Indonesia. Recognising that the threats being faced by the region cannot be addressed entirely within political boundaries (invasive species, bushfires and hydrological change ignore borders and demand international cooperation to address) the program also hopes to establish a 1.2 million hectare cross-border conservation area incorporating Tonda WMA with Wasur National Park in Irian Jaya.

Community Landcare Process

The Community Landcare project had a further purpose of systematically exploring the processes necessary to establish a broad and intensive program across a large tract of country owned primarily by indigenous communities. After some exploration, the approach adopted was a combination of bioregional planning (Miller 1996) and local methods developed from the WWF Community Resource Conservation and Development projects in PNG and the Solomon Islands (Chatterton and Means 1996). The Community Landcare process seeks to provide a dual and mutually reinforcing strategy of community level planning and implementation combined with regional planning and policy development (see diagram below).

Figure - Community Landcare Process (after WWF 1996)



The intiation phase of the Communty Landcare Program was completed in 1997 and involved four steps:

1. *planning information* - a literature review, stakeholder lists and legal assessment of implications of a cross-border conservation area (Callister, Casson and Genolagani 1997) have been prepared.
2. *partnerships negotiations* - agreed between WWF, DEC, the Provincial Wildlife Office, local community group ECOSEEDS and the Tonda WMA Committee. A multidisciplinary field team was formed from partner agencies.
3. *community level planning* - Each of the 20 villages and 3 government stations of Tonda WMA were visited - in some cases up to three times. At least half day

discussions were held with over 530 people on issues and concerns in resource management and their perceptions of what is needed to improve conditions.

4. *regional sustainable development planning* - the project conducted a four day workshop among regional stakeholders in the Tonda WMA to compile a plan for futue conservation and development activities. This brought togerther respresentatives from all villages, government officers, businesses and NGOs.

Communities identified the following issues as their priorities - poor health services, poor dry season water supply, lack of opportunities for generating cash, poor marketing facilities, wildlife poaching and breach of WMA rules, uncontrolled bushfires, difficulties of transport and communications, illegal fishing and overharvesting of marine resources. Community priorities for action included improving health care, increasing community ability and rights to stop poaching and to enforce WMA rules with Government assistance, establishing marine conservation protection, restricting fire lighting, improving water supply, establishing sustainable enterprises and marketing opportunities, and improving roads and radio systems.

The WMA Committee also recognised the need to improve its representation of landowners through the region and its ability to meet its management responsibilities. They hope to expand the conservation area into coastal areas and to revise the rules to better meet indigenous management systems.

Institution Building

On the basis of this community planning, the Community Landcare program now seeks to establish community level management for conservation and sustainable development over the TransFly region including a trans-frontier conservation area covering over 1.2 million hectares, as well as significant marine habitats in the Torres Strait. A threefold strategy will be undertaken of supporting community conservation and development planning; establishing local abilities in bioregional management; and building capacity of support agencies (Chatterton et al 1997).

Indigenous institutions are crucial to long term protection of wetlands - and these will remain a core focus of the Community LandCare program for some time. A major part of the program will involve building the skills of the Tonda Wildlife Management Committee in conservation area management, helping them to establish activities to address key threats and to begin ecoenterprises. As well as a sequenced training program, Committee members and DEC staff will undertake exchange visits to Wasur National Park and to Kakadu National Park in Australia facilitated by WWF Australia.

Tonda landowners will also examine the possibilities of coopting scientific and conservation area management skills onto the WMA Committee - whether through a parallel advisory structure or through formal membership of the committee. The latter may only be possible should the WMA be transferred over to “Conservation Area” status which provides for more comprehensive protection and allows a wider range of strategies for management. In addition to the WMA, which covers only a portion of the area, the project will examine structures for regional development planning that include all key stakeholders.

The experience of the past 20 years in Tonda WMA shows that community institutions, whether they be clan groups or conservation committees, do have the potential to be

effective, efficient and well suited managers of local environments. At the same time communities are best able to achieve this goal when their indigenous methods of organisation are supported, when local knowledge is recognised and when support is provided for management issues that may not be addressed within traditional frameworks. The hope with the South New Guinea savannas is to consolidate this community-based management and achieve coordination across larger geographic areas to achieve the "real protection" and "long term preservation" that Jacob Gagam alluded to.

INDIGENOUS WETLAND MANAGEMENT - INTO THE FUTURE

In what circumstances then should one seek to involve indigenous or resident communities? And where is this involvement crucial to the success of wetland conservation? Certainly in PNG the case is relatively straightforward. There is no legal or practical option than to recognise indigenous land and resource rights. Wetland management must be done in partnership with indigenous communities and should ideally seek to develop their capacity as at least co-managers.

The case is less clear in other countries such as Indonesia where the policy and legal framework does not as clearly support indigenous rights and may indeed oppose it. Yet even in these conditions, experience[4] indicates that indigenous and resident communities should be involved in conservation planning and implementation at every feasible point. From a purely pragmatic viewpoint, conservation managers should seek to avoid future conflict by recognising rights of use or ownership by indigenous communities and by involving communities in conservation planning. Indigenous communities also offer significant knowledge of a landscape and the ability to provide on-site monitoring and management that may not be possible within the resources of an external project.

Quite aside from this, there is an ethical question of the right of conservation managers to claim priority in management decisions over indigenous lands. Involvement of indigenous peoples is as much a human rights issue as a managerial one today. We have to ask ourselves whose land is this? Who has prior claims over the ownership of these lands? Who can prove continued connection to this area? The answers to these questions will determine who should be recognised and supported as the primary stakeholders in conservation management and who can offer the long term commitment to land management that is necessary for effective wetland conservation.

While in-principle recognition of indigenous rights should be granted, the practical steps to achieve indigenous wetland management are often far from clear. The Tonda experience and others in Oceania suggests that **engagement of indigenous communities** is most likely to be successful where:

- indigenous land tenure is recognised or clear claims exist that may be recognised in future;
- conflicts over resource ownership have been or can be resolved;
- the community is now or may potentially become a significant user of wetland resources and has a stake in maintaining productivity and significant sites;

[4] See reviews of integrated conservation and development projects in the last decade including Brown and Wyckoff-Baird 1992; Wells and Brandon 1992; Colchester 1994; Pimbert and Pretty 1995.

- indigenous communities are eager to be involved in continued wetland management;
- communities have or can develop the capacity to manage (or contribute to management of) wetlands;
- identified community leadership is supported and collaborative;
- indigenous land management systems exist and are operating eg. clan structures; land spokespersons; delegation systems; harvest restrictions etc.
- government extension and support for wetland management is weak and co-management is necessary to extend limited resources.

Having chosen to work with indigenous or resident communities, below are a number **of tools and processes for increasing their effective involvement in wetland management**. These draw from immediate experience in conservation in New Guinea and from current integrated conservation and development project (ICDP) and bioregional management theory[5]:

1. *Recognise indigenous rights* - In accordance with ILO Convention 169, conservation managers should recognise the rights of indigenous peoples to exert control over their land and resources and to decide on activities in their territories. As such, treat indigenous groups as the primary stakeholders in their territories. Enter only on invitation or written consent. An offer of support can be made to a community but no action should be taken unless that offer is accepted and an invitation to engage in partnership received. A strong indicator of the degree of likely continued support is when an invitation is initiated by the community itself. We should also remember that many indigenous groups have been the subject of sometimes quite brutal oppression. Understanding and acknowledging this history is essential in developing meaningful partnerships.
2. *Objectives* - Seek a long term goal of wetland management by indigenous peoples rather than with indigenous peoples. The difference, though small, is significant. By aiming to support local management, the likelihood of sustainability is increased and need for long term external inputs reduced. The potential for this depends, of course, on the capacity and readiness of the local communities.
3. *Equal weight to biological and cultural boundaries* - Define the unit of wetland management in ways that makes sense equally on biogeographical and cultural /social criteria.
4. *Clarify tenure conditions* - Seek to clarify resource ownership and to resolve any conflicts prior to further activity. Apart from the management complications that unclear tenure can create, it can also lead to reduced management enforcement due to confused authority and therefore to the potential of increased environmental damage[6].
5. *Identify and plan with a team of potential local partners* - Local institutions with a long term stake in the conservation management of an area are one of the most important factors in ensuring the long term sustainability of conservation outcomes. From the

[5] Drawn from Beauclerk and Narby 1988; Brown and Wyckoff-Baird 1992; Chatterton and Means 1996; Miller 1996. These tools and processes also seek to address some of the key problems in ICDP design identified be Wells and Brandon (1992).

[6] The people of the Tonda coast do not have recognised tenure over marine territories and hence are unable to enforce national controls against dugong hunting and hark fishing in their waters.

outset leaders in local institutions need to be sought and encouraged to take part in planning. These may include local government, NGOs, corporations or indigenous community groups. Pay particular attention to ensuring that marginalised groups are represented on this team.

6. *Formalise partnership arrangements* - Clarify the roles and expectations of each of the partners in a formal written document. This should recognise common objectives, activities to be undertaken in partnership and means of coordination, conflict resolution and review.

7. *Plan first at a community level* - Begin planning at the smallest level of resource management (family group, clans, communities etc). These groups often have least status in decision making. To start with them recognises their importance and ensures their voice is heard through larger planning processes. This also demands that you first identify indigenous decision making structures and units of resource management and work with these as a priority. Combine the result of this into larger level plans and use these as the basis of any regional development planning.

8. *Use methods that are appropriate to indigenous communities* - Careful attention needs to be paid to language, approach and methods in working with indigenous communities in order to ensure greatest involvement and comprehension (cf. Beauclerk and Narby 1988). Use local languages where possible. If communities are not highly literate, use visual and experiential techniques such as Participatory Rural Appraisal. Support and train community facilitators as leaders in community planning and cross-cultural interpreters. Ensure also that conservation managers are equipped for cross-cultural negotiation and planning.

9. *Indigenous land and resource management systems* - Attempt to base conservation management on indigenous systems of land zoning, harvesting controls, entry restrictions and other indigenous methods of regulation. Seek to understand and support cultural practices which promote conservation and the values that lie behind these. Assist communities to articulate these where appropriate through community resource policies, land laws, ethnobiological inventories etc.

10. *Agreements on use of indigenous knowledge* - Indigenous knowledge is the rightful property of that community and should not be distributed without prior consent. Negotiate a formal agreement with the community outlining the conditions under which indigenous knowledge may be distributed beyond the immediate partnership.

11. *Address immediate community concerns* - In order to build trust and commitment, as a priority identify and work on immediate community concerns that have a cause in environmental degradation or change eg. water quality, food availability, materials procurement. Even where these may be tangential to the primary concerns of wetland management, their value to relationship building cannot be overestimated.

12. *Demonstrate from small successes* - Use successful community initiatives - such as successful ecoenterprises or reintroductions of indigenous hunting restrictions - as examples from which surrounding communities can learn. The power of demonstration by community facilitators cannot be overestimated in ensuring that lessons are spread through a broader area.

13. *Autonomous local institutions* - A clear reason for the long term success of ICDPs are local institutions that provide assistance to communities and leadership in management decisions (Wells and Brandon 1992; Colchester 1994; Brown and Wyckoff-Baird

1992). These should be nurtured and developed as the lead agency in wetlands management where possible. Seek to ensure that they are fluid, self-evaluating, that leadership is regularly reviewed and easily changed and that they are communicating constantly with their community. This will often only be possible through a considerable investment in training and support.

14. *Integration of conservation, cultural and development objectives* - Again ICDPs work where the goals of conservation are linked to community development and cultural protection. Take care when framing project objectives that this integration is achieved.

15. *Parallel regional and community planning* - Community plans can only be maintained where there is a supportive policy and administrative environment. Seek to develop regional sustainable development plans that recognise and incorporate community planning. This may also require supporting legislation and policy. In accordance with bioregional management processes (see Miller 1996) regional planing should aim to be adaptive, open with information and involving. The intention should be to harmonise values of community, non-indigenous stakeholders and conservation management.

16. *Participatory monitoring and evaluation* - Regularly monitor and evaluate activities at both community and bioregional level with all stakeholders. Seek to establish a culture of open and critical review within local institutions.

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