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The economics of community forest management in Madagascar: is there a free lunch?

An analysis of Transfert de Gestion

Neal J. Hockley & Mijasoa M. Andriamarovololona

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Misaotra indrindra

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EXECUTIVE SUMMARY

THE RATIONALE FOR COMMUNITY MANAGEMENT OF FORESTS: MEETING THE TWIN CHALLENGES OF CONSERVATION AND DEVELOPMENT

Madagascar's forests harbour exceptionally high numbers of endemic species, but are surrounded by poor rural communities whose livelihoods often conflict with forest conservation. Madagascar and the international community therefore face a considerable challenge in reconciling commitments to reduce biodiversity loss with those to achieve the Millennium Development Goals. In addition, the World Bank, a major source of funding for conservation in Madagascar, requires that the rural poor are not disadvantaged by its projects. Forest conservation must therefore have a neutral or positive impact on rural communities. However, previous attempts at conservation in Madagascar including the previous phase of National Parks, have failed to deliver effective conservation that meets this criterion.

The policy of *Transfert de Gestion*, in which management of natural resources is transferred to local community associations called COBAs (*Communautés de Bases*), has been promoted as a way to achieve conservation and development synergistically, at minimal cost to the government and conservation donors. However, many COBAs struggle to be viable, and stakeholders still need to agree on the role that *Transfert de Gestion* will play in the *Nouvelles Aires Protégées* now being established in Madagascar. Given the great benefits offered by a fully functioning network of COBAs, it is imperative that the causes of this non-viability be investigated. We therefore carried out an economic analysis based on field visits to a representative sample of seven COBAs in the Fandriana-Vondrozo and Ankeniheny-Zahamena corridors.

THE PRINCIPLE OF COMMUNITY FOREST MANAGEMENT AND THE STABILITY OF CONTRACTS

We demonstrate that COBAs must generate net benefits at the community level to be viable. We show that by providing little external monitoring of COBAs' performances and expecting them to be self-sufficient once the contract has been signed, those implementing *Transfert de Gestion* have assumed that the interests of external stakeholders and communities are perfectly congruent. We demonstrate that such a pure win-win scenario is unlikely. We show that attempts by external stakeholders to maximise the value they derive from *Transfert de Gestion* contracts, through placing increased restrictions on COBAs' activities, will decrease the stability of these contracts, reduce the viability of COBAs and jeopardise conservation.

COBAS ARE NOT STABLE

As voluntary, membership-based associations, COBAs rely on the support of the community for their survival. Membership numbers are therefore a key indicator of COBA viability. Only four COBAs visited kept records of membership. Of these, three had suffered significant declines in membership numbers. The fourth, while still showing steady membership, had low rates of renewal, suggesting that a membership decline is imminent. We therefore conclude that none of the COBAs we visited was stable.

A YAWNING GAP BETWEEN COMMUNITY AND EXTERNAL PERCEPTIONS: THE IMPORTANCE OF THE ORAL CONTRACT

Communities showed great initial enthusiasm for the concept of *Transfert de Gestion*. However, there is increasing disillusionment among community members due to the failure of COBAs to live up to community expectations. There is a large gap between the communities' perceptions of *Transfert de Gestion* and those of external stakeholders, with the community's vision more closely matching that required to produce a sustainable solution. Community perceptions were grounded in the 'oral contract', established by mediators during the process of public education (*sensibilisation*) and negotiation. This oral contract had stressed development assistance in return for abandoning forest clearance. There is a large gap between this oral contract, and the official contract signed by COBAs. The problems with contract stability therefore result in part from asynchronies of power and information during contract negotiation, which led external agencies to drive too hard a bargain, while promising assistance that did not arrive.

REVENUES AND EXPENDITURES, OPERATING AND TRANSACTION COSTS

At present, COBAs rely entirely on membership fees for their income, which is concerning given their failure to retain members. 60% of expenditures were made outside of the community, and were necessitated by the need to comply with externally imposed requirements. COBAs therefore represent a financial drain on communities. We also demonstrate that certain externally imposed features of *Transfert de Gestion* may increase COBAs' transaction costs compared to indigenous community institutions. However, evidence on the operating costs of COBAs shows that their relatively low costs mean that they can still provide significant efficiency gains over other conservation mechanisms, even if they require external support.

OPPORTUNITY COSTS AND COMPENSATION

In order to be viable, to reconcile conservation with development, and to satisfy World Bank requirements, COBAs must compensate communities for the opportunity costs of forest protection. We briefly review the ways in which COBAs affect opportunity costs, and highlight the importance of the COBA's position on the production-protection spectrum. Protection-oriented COBAs are likely to bear higher opportunity costs.

GENERATING BENEFITS FROM MANAGING FOREST EXPLOITATION

One of the most important potential benefits of *Transfert de Gestion* is the opportunity to exclude outsiders and manage forest exploitation. We review the factors that will determine whether communities with COBAs do in fact benefit from this opportunity. We note a number of reasons why this is unlikely to be the case, including very restricted and insecure transfer of exploitation rights to communities, unfair competition from illegal or unsustainable sources, and restrictive external requirements. The design of many contracts, together with the wider policy landscape is deeply unhelpful to COBAs. External stakeholders are guilty of unwittingly trying to extract a free lunch from COBAs by requiring self-sufficiency while severely constraining their ability to generate benefits. This has directly threatened the stability of *Transfert de Gestion* contracts.

OTHER WAYS OF GENERATING BENEFITS

We review three other methods by which COBAs can generate benefits: finding new products or adding value to existing ones, generating community pride, and capturing the value of ecosystem services provided by forest conservation. We conclude that the potential of the first is often exaggerated with respect to many forest products, although there is significant potential for the development of small-scale adventurous ecotourism. The second may reinforce a functioning COBA but may not be enough on its own. Finally, payments for ecosystem services, including biodiversity conservation and carbon sequestration offer considerable promise. However, the current system leaves COBAs largely powerless to negotiate such contracts. External agencies should therefore institute a system that provides independent verification of a COBA's performance, and connects COBAs to those who benefit from ecosystem services.

CONCLUSIONS

Despite good intentions on the part of external stakeholders, the implementation of *Transfert de Gestion*, together with the wider policy landscape, has been deeply unfavourable to COBAs, due to a substantial disconnect between communities and the centre, and a lack of realism on the part of policy makers. This has threatened the very real benefits which COBAs can offer to their communities and wider society, and reduced the stability of *Transfert de Gestion* contracts. By providing insufficient support to COBAs, and pretending indifference to the wider benefits of their management, external stakeholders have tried to extract a 'free lunch' from communities; securing forest conservation at minimum cost. This is not stable over the medium or long-term. *Transfert de Gestion* can and should be improved. If favourable conditions are created, COBAs offer an efficient and equitable mechanism for achieving forest conservation in Madagascar. In areas where communities identify strongly with the forest, some form of community management may be the only viable option.

RECOMMENDATIONS

We advocate a dramatic change in the attitudes of external agencies. In particular, we recommend that more attention is paid to the implications of forcing COBAs into a largely protectionist, rather than production-oriented contract. We also highlight the enormous positive externalities of effective conservation delivered by COBAs and recommend that mechanisms are established to help COBAs capture these, through payments for environmental services. We recommend that existing development assistance is more tightly linked to COBAs, and hence to forest conservation. Finally, we believe that a network of fully functioning COBAs, funded through payments for environmental services, should play a key role in the management of the Madagascar's *Nouvelles Aires Protégées*. It could be the most efficient, perhaps the only way of achieving conservation with a positive impact on local communities.

PREFACE

The study we report here was commissioned and funded by Ecoregional Initiatives (ERI), a project implemented by Development Alternatives Inc¹. and funded by the United States Agency for International Development (USAID) under its Strategic Objective 6: Conservation of Biologically Diverse Forest Ecosystems. The objective of the study was to carry out a field-based evaluation of Madagascar's policy of transferring forest management to local communities (*Transfert de Gestion*), and the socio-economic viability of the community organisations (COBAs) it has created.

Most of the site-specific outputs from the study have been presented in Vokatry ny Ala (2006, 2007)², which also provide full details of the methods used and the sites visited during the study. The aim of this report is to:

- present an institutional-economic framework for analysing Community-Based Natural Resource Management (CBNRM) and the policy of *Transfert de Gestion*;
- to summarise the findings from the fieldwork in the light of this framework;
- to make policy recommendations relevant to *Transfert de Gestion* of forest resources at the national scale, with particular reference to the role of COBAs in the New Protected Areas.

In Section 1 we outline the policy context of conservation in Madagascar and introduce *Transfert de Gestion*. Section 2 briefly introduces the study objectives and methods. From section 3 onwards, we present the results of the fieldwork in the form of an economic analysis of *Transfert de Gestion* the aim is to identify generalities from what we found in the field. Section 3 critically evaluates the principles of Community-Based Natural Resource Management (CBNRM) in general, and the policy of *Transfert de Gestion* in particular. Section 4 assesses the stability of the COBAs we visited, and presents the communities' views on *Transfert de Gestion*. Section 5 presents the revenues and operating costs of COBAs, while Section 6 looks at opportunity costs and compensation. Sections 7 and 8 look at the ways COBAs can generate benefits. Section 9 summarises the conclusions, and Section 10 presents our recommendations for improving the system of *Transfert de Gestion*. Each section starts with a summary and ends with brief conclusions: those without the time to read the whole report could still gain much from reading these.

¹ The first author was employed by Innovative Resources Management, on behalf of DAI.

² These reports, along with other supplementary material, are available from the website: www.bangor.ac.uk/~afpe5d/TransfertdeGestion.html

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GLOSSARY AND DEFINITION OF TERMS

ANGAP	Association Nationale pour la Gestion des Aires Protégées
<i>Cahier Charges</i>	de This document sets out the detailed conditions of the COBAs contract
CBNRM³	Community-Based Natural Resource Management
CFM	Community Forest Management
COBA	<i>Communauté de Base</i>
COGE	<i>Comité de Gestion</i> . The management committee of COBAs
<i>Dina</i>	Traditionally, <i>dina</i> were community rules established by the community. In <i>Transfert de Gestion</i> , the word <i>dina</i> refers to the rules governing the COBA's management of the forest, which are supposed to be accepted by the traditional authorities in the community, and also ratified by the formal legal system in a <i>tribunal</i> . See discussion in Section 5.
<i>Droits d'usages</i>	Lit. rights of usage: the rights to use the forest for subsistence use.
ERI	Ecoregional Initiatives. USAID-funded project implemented by Development Alternatives Incorporated. ERI continued the work of LDI/PTE.
External Stakeholders	Throughout this report we refer to the Malagasy nation and state, foreign donors and conservation organisations collectively as external stakeholders. These are assumed to have relatively homogenous interests: biodiversity conservation and rural development (see Section 2).
ICDPs	Integrated Conservation and Development Projects
IUCN	The World Conservation Union
LDI	Landscape Development Interventions. USAID-funded project implemented by Chemonics International which preceded PTE and ERI
NTFPs	Non-Timber Forest Products
Opportunity Costs	The net benefits forgone when an activity is not undertaken.
<i>Organismes</i>	Supporting organisations. Those organisations who encourage and

³ Throughout this report we use CBNRM when speaking of community-based natural resource management in general, and Transfert de Gestion when referring to the CBNRM policy implemented in Madagascar.

d'Appuis	support COBAs to sign contracts and, sometimes, provide ongoing support after the contract has been signed. These include international conservation organisations like WWF and Conservation International, development organisations like ERI as well as Malagasy NGOs such as SAGE.
PEIII	<i>Plan Environnemental 3 / 3rd Environmental Plan.</i> An umbrella term for the third phase of donor-funded conservation effort in Madagascar. This includes the creation of the New Protected Areas, and significant expansion of <i>Transfert de Gestion</i> .
Polisin'ala	Forest police: the patrols mounted by the COBA. <i>Polisin'ala</i> are not necessarily members of the COGE.
Positive Externalities	Benefits felt by wider society as a result of an individual or institution's actions, but which are not paid for by those who benefit.
PTE	<i>Programme de Transition Eco-régional</i>
SEF	<i>Service des Eaux et Forêts</i> : the state forestry service
Sensibilisation	Awareness raising or public education. Often, however, the aim of <i>sensibilisation</i> is to change attitudes as well as simply convey information.
Teviala	The practice of clearing mature or 'primary' forest for agriculture, usually through slash-and-burn.
Transaction Costs	The costs associated with the functioning of any institution, like a COBA, which brings together individuals in order to cooperate or trade.
USAID	United States Agency for International Development

SECTION 1

THE TWIN CHALLENGES OF CONSERVATION AND POVERTY

SUMMARY

This section highlights the twin challenges facing the Malagasy government and the international community: achieving conservation in this biodiversity hotspot while also reducing Madagascar's rural poverty. We briefly review the record of National Parks at delivering conservation that is compatible with development, and introduce the policy of *Transfert de Gestion* (lit. Transfer of Management), as an alternative response to this challenge. We then consider stakeholders' expectations for what a successful *Transfert de Gestion* policy should achieve. The expectations are ambitious but if met would lead to enormously improved forest conservation whilst rural poverty was also reduced. However, *Transfert de Gestion* faces a formidable challenge, as many community associations (COBAs, *Communautés de Bases*) struggle to achieve economic viability. Nevertheless, it is far from clear that any of the alternatives to *Transfert de Gestion* are likely to achieve these ambitious goals more effectively, for an equivalent cost. It is therefore vital that the Malagasy government, and the donors, give serious attention to *Transfert de Gestion* and to the COBAs.

INTRODUCTION

Conservationists identified Madagascar as one of the world's highest priorities for biodiversity conservation, with exceptional levels of endemism: 75% of mammals and 80% of flowering plants are found nowhere else. Combined with high past and present rates of natural habitat conversion, this endemism led Mittermeier *et al.* (2004) to recognise Madagascar and the Indian Ocean Islands as one of the "hottest of the biodiversity hotspots".

Unfortunately, Madagascar is also one of the poorest countries in the world, ranking 169th with a GDP per capita of \$857⁴ (UNDP 2006). 73% of the population lives in rural areas (UNDP 2006), and large populations of poor people surround many areas of high conservation value. These people extract renewable and non-renewable resources from the forests, as well converting them to agricultural land.

The co-occurrence of extreme poverty and biological richness presents a huge challenge to the Government of Madagascar and the international community, who are committed to both the Convention on Biological Diversity (CBD) and the UN Millennium Development Goals (MDG). The objectives of these are to reduce biodiversity loss and to halve extreme poverty by 2010 and 2015 respectively⁵. This challenge is not unique to Madagascar, but is faced in many developing countries. Furthermore, the World Bank, which has contributed 40 million dollars to PEIII⁶, requires that no "vulnerable people" lose out as a result of the projects it funds. It is therefore clear that biodiversity conservation in Madagascar must not have a negative net impact on rural livelihoods. More ambitiously, many hope that the two goals of can be combined synergistically, with conservation benefiting the rural poor,

⁴ Ranking is out of 177 countries, in 2004. GDP is adjusted for Purchasing-Power Parity.

⁵ See www.biodiv.org for the CBD and www.un.org/millenniumgoals for the MDG.

⁶ (*Plan Environnemental III*), the latest phase of conservation action in Madagascar

who will in turn support conservation efforts. To date, success in combining these two agendas across the world has been rare (Adams *et al.* 2004), partly because biodiversity protection often conflicts with livelihood strategies, including the conversion of forest to agricultural land.

DO PROTECTED AREAS MEET CONSERVATION AND DEVELOPMENT OBJECTIVES?

Colonial and post-colonial governments made repeated attempts to prohibit forest conversion and to regulate the use of forest resources during the last century, with the principal aim of protecting the state's timber stocks. They generally failed, either because of active community resistance, or because of the sheer scale of the task, which involved monitoring and enforcing centrally imposed regulations across large areas of remote forest surrounded by large local populations (Kull 1996, 2004). Major internationally funded conservation efforts began in 1985 with the development of Madagascar's first National Environmental Action Plan (Hannah *et al.* 1998). Initially, biodiversity conservation efforts focussed on establishing a system of protected areas, often based on the model of Integrated Conservation and Development Projects (ICDPs). Although rigorous evaluations are surprisingly rare, these comparatively well funded ICDPs appear to have been broadly successful in reducing, if not eliminating, rates of forest conversion and in preventing illegal mining and timber harvesting. Nevertheless, their impact on forest conversion rates has varied greatly between sites (Sommerville 2005, Dollar 2006) and their success in reducing less visible threats to biodiversity, such as small-scale extractive uses (including hunting) remains unquantified and is probably less impressive (*pers. obs.*) Finally, they have been criticised as being top-heavy and having a negative rather than positive impact on local people (Peters 1998); as well as being inefficient due to the weak linkages between biodiversity conservation and rural development (Ferro 2001).

COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT

Community-based natural resource management (CBNRM) attempts to reconcile conservation and development by exploiting the assumed synergies between them (see Section 3). In Madagascar, CBNRM has been promoted through the policy of *Transfert de Gestion des Ressources Naturelles Renouvelables* or simply *Transfert de Gestion*. Through *Transfert de Gestion*, the state delegates limited tenure and sustainable use rights (sometimes including commercial harvesting) to a legally recognised local community institution (*Communauté de Base* or COBA), in exchange for a contractual obligation to conserve the transferred resources. Contracts are signed between the state and the COBA for an initial fixed term of three years. The state retains full ownership of the forest and the right to revoke or modify contracts, which can be renewed for a further ten years following satisfactory performance in an evaluation. *Transfert de Gestion* has been implemented for the most part using two legal instruments: the GELOSE law (*Gestion Locale Sécurisée*: secured local management) and later GCF (*Gestion Contractualisée des Forêts*: Contractualised Forest Management). GCF responded in part to the perceived complexity of GELOSE, and provided a more streamlined mechanism with which to implement *Transfert de Gestion*, by reducing the emphasis on tenure security (*Sécurisation Foncière Relative*) and environmental mediators.

TRANSFERT DE GESTION IN THE FUTURE

WILL COBAS PLAY A ROLE IN THE *NOUVELLES AIRES PROTÉGÉES*?

Transfert de Gestion played little part in the first wave of modern protected areas. These were initially created and managed by international NGOs before being transferred to a newly created national parks agency, ANGAP (*Association Nationale pour la Gestion des Aires Protégées*), though see Erdmann (2003). However, a new wave of protected areas is now being established in Madagascar, which will triple the size of the protected area network. These *Nouvelles Aires Protégées* (New Protected Areas, NAPs) will cover most of the remaining unprotected natural habitat on the island, and affect the livelihoods of many thousands of rural Malagasy.

The role that *Transfert de Gestion* will play in these New Protected Areas is still to be fully determined. One review of protected area costs has recommended that the role of COBAs be limited to small areas of natural habitat, of lower conservation priority (Meyers *et al.* 2005). However, the review did not directly estimate the costs or effectiveness of COBAs, nor compare them with ANGAP. Therefore, the reason for this conclusion is not immediately apparent. It also ignores the reality that many COBAs already manage areas of high conservation priority and parts of large forest blocks, within the NAPs

In support of a role for *Transfert de Gestion*, a recent review by the World Conservation Union (IUCN) recommended that Madagascar should not “alter or remove control from the communities” (Dudley & Borrini-Feyerabend 2005). Furthermore, a national review of *Transfert de Gestion* proposed that it be maintained and promoted as one of the pillars of sustainable development in Madagascar⁷ (RESOLVE 2006). Perhaps most importantly, Madagascar’s third environmental plan (PEIII) includes a program to increase the area transferred to community management. Donors, including the World Bank and the US Agency for International Development (USAID) support this plan. Since most natural forest will be covered by a NAP, this could and probably will involve the creation of new COBAs within the boundaries of the NAPs. It is therefore likely that *Transfert de Gestion* will play a central role in the functioning of the new NAPs.

THE OPPORTUNITIES OF *TRANSFERT DE GESTION*

The potential merits of *Transfert de Gestion* are many. We collated the following list of roles and objectives from reading legislation and policy documents, observing the actual implementation of *Transfert de Gestion*, and from our understanding of the expressed hopes and visions of the donor agencies. We note that it is either required or widely expected that COBAs will:

- 1) Improve forest management relative to that provided by the state: preventing deforestation, illegal mining and logging, and settlement within the forest. COBAs should also manage and monitor all permitted uses of the forest to ensure that they are sustainable, and manage part of their transfer as a strict conservation zone.
- 2) Raise revenues to cover their operating costs, ensuring self-sufficiency.

⁷ « ...de retenir et de promouvoir le TGRNR en tant que l'un des piliers du développement durable à Madagascar »

- 3) Provide benefits for their community, thereby ensuring that conservation has a neutral or preferably positive impact on rural poverty.
- 4) Follow administrative and financial good practice, reporting regularly to Communes and to the *Service des Eaux et Forêts* (SEF)⁸, the state forestry service.

If a comprehensive, functioning network of COBAs were established that met these objectives for the peripheral zones of all natural forests (where pressures are greatest), the Government of Madagascar and other external stakeholders would have created a development-compatible, equity-neutral system of protected areas, which not only halted biodiversity loss but also contributed to the Millennium Development Goal of reducing poverty. The value of a successful network of COBAs to all stakeholders is therefore very high.

... AND THE CHALLENGES

Even for their supporters, including those who are as concerned with rural development as with biodiversity conservation, there are serious concerns over the viability of COBAs that must be addressed before they can fulfil their potential in conserving Madagascar's forests and reducing rural poverty. To quote from our terms of reference:

"A major challenge facing COBA associations is generating revenue to meet operating costs. ... The very future of some COBA associations is at stake because of this bottleneck. There is a vital need ... to realize the full economic potential of forest resources ... The urgency of gaining economic benefits from these cannot be overstated."

IS THERE AN ALTERNATIVE TO COBAS?

There are those who remain sceptical of the ability of COBAs to implement effective conservation, or to achieve economic viability without impacting too heavily on the forests⁹, and who therefore wonder whether there might be an alternative to *Transfer de Gestion*. This is an important question that we aim to address in this report. Here, we confine ourselves to making the following observations.

First, it is important to remember that whatever method of conservation is used, the forests will still be surrounded by high densities of poor rural people, wanting to make use of their resources. To achieve conservation while meeting World Bank requirements, illegal mining and logging would need to be prevented and hunting and forest product collection controlled, all in a manner compatible with Madagascar's democratic principles and with a neutral impact on rural poverty. The goals therefore remain daunting, irrespective of the mechanism chosen.

Second, we note that it is not useful to consider only the effectiveness of a mechanism, we must consider its cost-effectiveness, and we must also be realistic when making comparisons with other conservation mechanisms. For example, it is

⁸ Also known as the *Services Techniques Déconcentrés*.

⁹ Allowing sustainable timber harvesting by COBAs, for example, may increase their economic viability but at a cost in terms of the level or type of conservation that they are able to deliver.

inappropriate to compare COBAs with national parks, unless we acknowledge the imperfect record of parks, and the substantial amount of support they have received.

The question is therefore: which method of forest management and rural development can achieve the above tasks most reliably, and at lowest cost: COBAs, the state (e.g. through an ANGAP-style entity), private contractors such as conservation or development NGOs, or some mixture of the three? In what follows, we hope to go some way towards answering this question.

CONCLUSIONS

Madagascar and the international community face a considerable challenge in protecting biodiversity while encouraging rural development. No previous approach has proved infallible, and we should be careful when comparing *Transfert de Gestion* with other conservation mechanisms, to ensure that we take account of the actual performance of each approach, across the full range of objectives, and in relation to the resources expended.

SECTION 2 INTRODUCTION TO THE STUDY

SUMMARY

This section sets out the objective of the study, and the approach we took.

STUDY OBJECTIVES

We aim to determine whether the current system of *Transfert de Gestion* creates COBAs that are viable in the long-term, and if not, how the system could be improved.

WHY AN ECONOMIC ANALYSIS?

Economics does not tell us everything. However, by taking a broad view, and analysing *Transfert de Gestion* from the perspectives of institutional economics and political economy, we can draw many pertinent conclusions.

The approach we have taken is to analyse *Transfert de Gestion* as a contract, embodied by the institution of the COBA, and to explicitly consider the benefits and costs generated by the contract for each party. Note that we use the words costs and benefits in their broadest sense, included non-market, and intangible values. By understanding the distribution of costs and benefits among the different parties to the contract, including the transaction and operating costs associated with the contract itself, we can investigate the value of the contract to each party and the likely stability of the contract. The idea being that the more that one side gains from a contract (i.e. the larger its net benefits) the harder that party will work to ensure that the contract is upheld. Thus if a contract creates sizeable net benefits for both parties, it is likely to be stable. If, on the other hand, it is one-sided, it may be likely to breakdown.

Because the focus of this report is on the local communities and COBAs and the interface between them and other interested parties, we refer to the latter collectively as 'external stakeholders', as opposed to the 'community'. This includes the Malagasy nation and state, foreign donors and conservation organisations. For the purposes of this analysis, the external stakeholders are assumed to have homogenous objectives, as outlined in section 1, i.e. the conservation of biodiversity and the reduction of rural poverty. While we are aware that these actors may have other goals, and are probably not in perfect agreement, such desegregation and speculation lies outside the scope of this report.

SCOPE AND STUDY AREA

We focussed on COBAs in the Fandriana-Vondrozo and Ankeniheny-Zahamena forest corridors, which constitute ERI's principal areas of operation. These areas

have been designated as NAPs under temporary protection legislation issued as *Arrêtées Interministériels*. Our focus is on natural forests but we believe that our framework is equally applicable in other areas where *Transfert de Gestion* has been implemented such as freshwater and marine habitats.

SITE SELECTION

This study aimed to provide advice to ERI that is pertinent to all COBAs supported by the program and yet is based on in-depth field visits. This required that the sample of COBAs visited be relatively small, but representative of the population as a whole. We selected six working COBAs in total. In addition, we also visited one that was in the process of being established (Anjahamana in the Ankeniheny-Zahamena corridor). We used stratified sampling to select the six working COBAs to be visited. Table 1, overleaf, lists the COBAs visited, together with their key characteristics. The criteria included:

Corridor. We visited three working COBAs from each corridor (Ankeniheny-Zahamena; Ranomafana-Andringitra).

East / West. In each corridor, we selected at least one COBA from the eastern and eastern sides of the corridor, with equal numbers from west and east overall.

Organisme d'appui. We included in the sample COBAs that had been initially supported by organisations other than ERI (e.g. those in Didy).

Type of Contract. We included both GELOSE and GCF COBAs.

Purpose of the COBA. We included COBAs which spanned the full range of objectives including conservation; *droits d'usages* (subsistence harvesting of forest products); production.

Size of transfer: The full range of sizes of transfer were included, from 85ha to 2745ha.

Contract Age. COBAs at all stages of development, from those waiting for renewal of their contract to those still in the process of establishment were included.

Accessibility. We included COBAs that were remote or moderately remote in both corridors. In general, easily accessible COBAs have received the greatest attention to date, and we therefore wished to ensure adequate representation of more remote communities. More remote COBAs may face the greatest challenges, but also manage some of the most valuable forest from a biodiversity perspective.

The study was based on two visits to each of the seven COBAs, during August to November 2006. These were carried out by the team from Vokatry ny Ala, with the first author accompanying the team for the second visits to Angalampona and Anjahamana, during September 2006. These visits are described in full in Vokatry ny Ala (2006, 2007) and relied on semi-structured interviews with members of the communities and COBAs, officers of the COBAs (the *Comité de Gestion* or COGE) and other key persons, combined with forest surveys. The methods evolved during

the study, as we learnt the key issues, and since each COBA was different, they were never completely standardised. In addition to these field visits, we reviewed pre-existing documentation and information kindly provided by ERI personnel and other organisations.

The bias in this study was towards time spent in the communities, rather than in interacting with external stakeholders at higher levels. We felt that this was important: our chief objective was to find out the realities of COBAs on the ground. In addition to the field visits undertaken specifically for this study, both authors have spent more than five years carrying out field studies of natural resource use and management in forest-edge villages in Madagascar, and this experience has informed the study.

TABLE 1: THE SEVEN COBAs VISITED DURING THE STUDY

Fokontany, Commune, (Region)	East/ West	Supporting Organisations	Contract and Date	Objectives¹	Size (ha)	Accessibility
Ranomafana-Andringitra Corridor, Fianarantsoa Province.						
Angalampona, Miarinarivo, (Matsiatra Ambony)	W	LDI, PTE, ERI, ONG Tsidy	GCF 30/06/01	C, DU, Rehab	2745	30 km from Ambalavao by taxi brousse once per week to commune centre, or daily to 15km away. 30 mins walk to fokontany.
Antsatrana-Antekoho Ikongo, (Vatovavy Fitovinany)	E	CAF-Dette Nature LDI/PTE/ONG Tsidy	GCF 7/12/02	C, DU, P	293	Train and Taxi brousse, to Ikongo 2hrs walk
Tsaratanana Ambatofotsy, (Vatovavy Fitovinany)	E	SAGE	GELOSE 11/10/03	C, DU, Rehab	5862	Train and Taxi brousse, 2hrs walk
Zahamena-Mantadia Corridor, Toamasina Province						
Vohidrazana, Beforona	E	LDI/PTE/ERI	GCF 28/04/05	P&C	85	Easy: on the side of the RN 2
COBA: Lazasoa-Lovasoa Commune: Ambohijanahary, (Alaotra-Mangoro)	W	Miray/ERI	GCF 05/06/04	DU, P&C, VE, Pasture	1227	Accessible by 4X4 in the dry season.
COBA: Belanonana Commune: Ambohijanahary, (Alaotra-Mangoro)	W	Miray/ERI	GCF 05/06/04	DU, P&C, VE, Pasture	1410	Accessible by 4X4 in the dry season.
Bevoalavo Anjahamana, Anjahamana (Atsinanana)	E	ERI	GCF Yet to be signed	DU, P&C, VE	1377	Taxi brousse then walk

¹ C=Conservation; DU=*Droits d'Usages* (forest product collection and harvesting for local use); Rehab=Réhabilitation (restoration); P=Production; P&C=Protection & Conservation; VE= Economic Valorisation.

SECTION 3 PRINCIPLES OF COMMUNITY MANAGEMENT: IS THERE A FREE LUNCH?

SUMMARY

In this section we describe the principles behind community-based natural resource management (CBNRM), which has been implemented through *Transfert de Gestion* within Madagascar. The idea behind CBNRM is that by establishing the correct local institutions, a win-win scenario can be found through which conservation of natural resources is delivered while improving the welfare of the people dependent on those natural resources. In this way, a relatively small investment from the donors in establishing community institutions would result in long-term conservation without on-going investment. We discuss the special circumstances required for this win-win scenario to exist and suggest that they may be rare. However, we also suggest that the lack of a pure 'win-win' scenario could be overcome if external stakeholders continued to support the local institutions and we highlight that this does not negate CBNRM as an efficient, community focussed conservation mechanism.

We then discuss the conditions necessary to maximise the chance that CBNRM is successful and stable over the long run. We frame this in terms of the costs and benefits of CBNRM contracts for both parties. We highlight that what is allowed in the contract will affect the costs and benefits on both sides. For example; a strict conservation contract with no logging rights has higher benefits for the external stakeholders but higher costs (opportunity costs) for the communities. We conclude that there is a risk that external stakeholders will attempt to extract a free lunch from COBAs: conservation at zero (or minimal) cost. Instead, they must be realistic when establishing *Transfert de Gestion* contracts, and carefully consider how the local community will benefit from the contract. Attempts to extract a free lunch from COBAs will result in unstable contracts liable to collapse. This would result in a failure of conservation and a waste of donor investment.

THE PRINCIPLES UNDERLYING CBNRM

Although *Transfert de Gestion* is a product of circumstances specific to Madagascar, its underlying principles are the widespread paradigm of Community Based Natural Resource Management (CBNRM).

CBNRM AND THE 'TRAGEDY OF THE COMMONS'

Biologically, the rationale for CBNRM is grounded in Hardin's 1968 observation that open access resources were often over-exploited, a general phenomena he termed the "tragedy of the commons". A tragedy of the commons occurred because each individual had insufficient incentive to limit his current rate of exploitation in order to ensure the future of the resource, since it was unlikely that he would be the one to benefit. Thus, exploitation continues above the optimal level (that level which maximises the aggregate benefit from the resource), and the resource may be seriously depleted. In a sense, there are two tragedies. First, the aggregate benefit derived from the resource is lower than might otherwise be, which is a tragedy for the community. Second, that the resource is depleted, often to a level where recovery becomes impossible and extinction results. This is a tragedy for all who care about the resource, including external stakeholders such as conservationists and the state.

CBNRM, DECENTRALISATION AND DECOLONISATION

In addition to the biological rationale described above, the CBNRM paradigm was a product of a wider trend towards decentralisation and empowerment of communities. In many parts of Africa, this was part of a deliberate effort to ‘decolonise’ resources, which often continue to be managed in ways largely unchanged since the colonial era.

THE VIRTUOUS CIRCLE OF CBNRM

Although Hardin recommended two possible solutions to tragedies of the commons (state or private ownership), subsequent authors have noted many cases where communities have successfully managed common property resources, from which outsiders are excluded, through cooperative institutions (Feeney *et al.* 1990). Since these institutions not only increase the aggregate benefit derived from the resource, but also protect the stock on which the harvest depends, conservationists¹⁰ have proposed that similar institutions could be created elsewhere; benefiting communities while protecting the natural resources. They also noted that nominally state-owned resources were often open-access in practice. Thus was born the concept of promoting CBNRM where it did not already occur, and formalising it where it did. It was hoped that by providing communities with secure tenure over natural resources, a virtuous circle would be created with the conservation of the resource base a by-product of this self-sustaining system (Figure 1, overleaf). Such a virtuous circle would provide a ‘win-win’ scenario for external stakeholders: conservation achieved without the need for ongoing external inputs. The key thing to note here is that CBNRM is promoted not simply as a means to help communities help themselves, but also as a way to ensure that natural resources and habitats are not subject to degradation considered unacceptable by the external stakeholders.

¹⁰ Throughout this report we use ‘conservationist’ as an umbrella term for individuals and organisations, outside the community with an interest in conserving and sustainably managing natural resources, including foresters and other natural resource management specialists. We recognise that local people may also be conservationists, but eschew the term “external conservationists” for brevity’s sake.

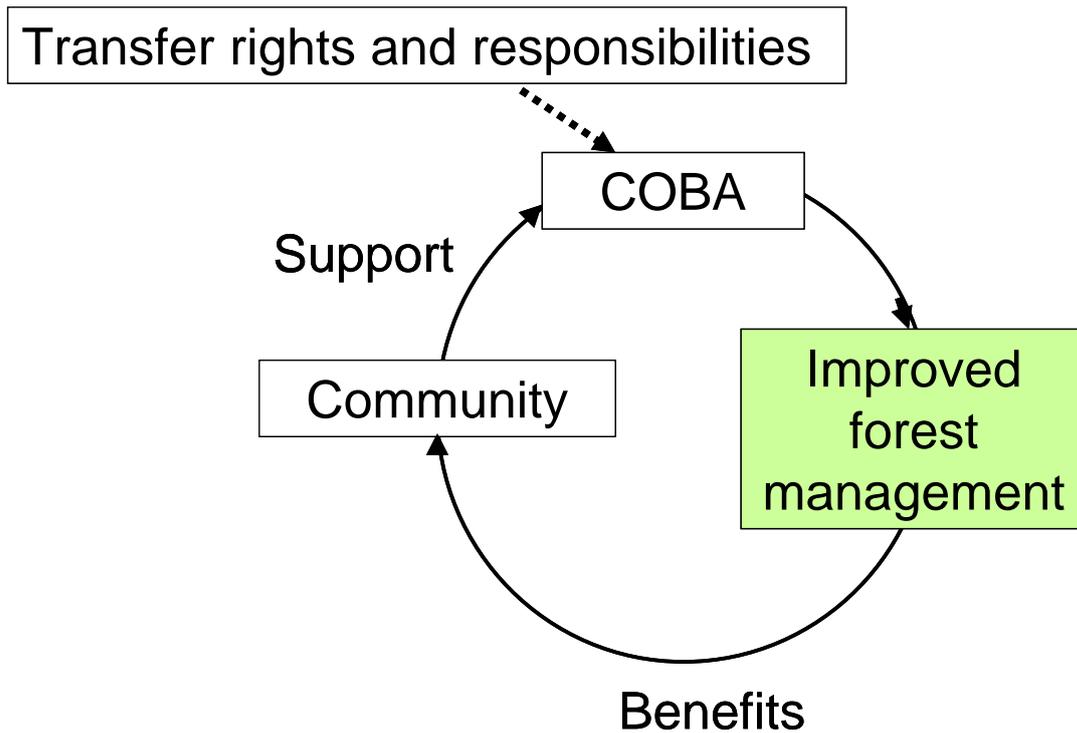


FIGURE 1: THE VIRTUOUS CIRCLE OF *TRANSFERT DE GESTION*

DOES CBNRM REQUIRE ‘WIN-WIN’ SCENARIOS AND WHAT CAN BE DONE WHEN THESE DO NOT EXIST?

WIN-WIN SCENARIOS

The traditional view of CBNRM (and, as we shall see, one which has influenced *Transfert de Gestion*) requires a “win-win” scenario where the twin goals of conserving biodiversity and meeting the needs and desires of local communities are reasonably congruent. In such a scenario, two conditions must hold. First, the direct benefits to the community from managing and conserving the resource (in the form of extractive uses, and perhaps ecotourism revenues) must outweigh the costs of doing so. Second, the type of management favoured by the community must closely match that expected by the state or conservationists. Transforming diverse natural forest into one containing only valuable timber trees might constitute good management as far as the community is concerned, but would be unlikely to please conservationists. If these conditions hold, external stakeholders would not need to give ongoing support to the community, because once the CBNRM institutions such as COBAs were established, conservation of natural resources would be sure to follow.

This is an unnecessarily restrictive view of CBNRM, which tends to ignore the benefits of community management for wider society and the possibility that CBNRM might still be an efficient and equitable mechanism for achieving external objectives, even if such a win-win scenario does not exist. The key to reconciling incongruent interests is as always to agree a contract whereby the community agrees to meet certain externally defined and monitored objectives, in return for external support.

Adams and Hulme (2001: p195) list ten conditions which make success in CBNRM more likely, and these are essentially necessary (but not sufficient) conditions for a win-win to exist. Table 2 below summarises these conditions (column 1, adapted

from Adams & Hulme), and suggests ways in which CBNRM can be made to work if they are not met (column 2).

TABLE 2: NECESSARY CONDITIONS FOR A WIN-WIN CBNRM (ADAPTED FROM ADAMS AND HULME 2001).

Conditions necessary for a win-win scenario	How can CBNRM work if the condition does not hold?
1. Resource harvesting yields sustainable revenue	Other sources of revenue must be tapped, including payments for environmental services.
2. Market for harvests is sustainable	
3. Wildlife resource is large enough to secure local support for conservation action	True, the resource must be large enough to justify the CBNRM institution's existence and cover its costs. However, note that opportunity costs may also rise with the size of the resource.
4. Economic benefits depend on a wide range of biodiversity rather than a few species	If only a narrow range of biodiversity is needed to create direct benefits, incentives and monitoring must be put in place to ensure the full range of biodiversity is conserved. Ecotourism may widen the range of biodiversity on which economic benefits depend.
5. Loss of rights by local people are outweighed by economic benefits and / or other incentives	If direct benefits of CBNRM do not outweigh costs, the local community must capture the wider benefits (positive externalities) of CBNRM, such as biodiversity conservation and avoided CO ₂ release.
6. Donor investment is long-term	The less of a win-win situation it is, the longer external support will be required.
7. CBNRM rhetoric changes the ideology and practices of the state and conservation agencies	Radical change in attitudes, particularly towards delegation, will always be necessary.
8. CBNRM delivers benefits as planned and meets local expectations	Mutual trust is essential: if communities feel misled they may reject an agreement even if it would make them better off.
9. Genuine power sharing by the state and conservation agencies with local people	This depends on the definition of power. The state or conservation agency must be willing to delegate operational power, but they can still set objectives.
10. Non-monetary values of nature are shared by local people	This is not essential, but CBNRM will be more stable and the costs of incentives lower if local people share non-monetary values of nature, and shared values may strengthen the agreements.

The virtuous circle therefore requires special circumstances (such as a sustainable revenue large enough to win local support and genuinely dependent on maintaining the full range of biodiversity important to external stakeholders). Such circumstances may be rare. However, CBNRM can be made to work even where there is not a simple win-win scenario as long as external agencies are willing to give on-going support, in recognition of the wider benefits of CBNRM. We can envisage a spectrum of CBNRM scenarios, which differ according to the degree of congruence between externally defined conservation objectives and the interests of the community. Three illustrative cases along this spectrum might be:

1. The *pure win-win* scenario. There are no conflicts between external conservation objectives and those of local people *once communal action problems are solved*. In

other words, once any tragedies of the commons have been resolved through appropriate CBNRM institutions, conservation and development interests are perfectly congruent.

2. The *net win-win*. As the interests of external stakeholders and communities begin to diverge, there might be some costs to communities but these are more than made up for by the benefits, meaning that CBNRM still benefits both communities and conservationists. For example, if communities reap benefits from only a narrow component of the area's biodiversity, they may neglect other less useful components. However if, overall, CBNRM is in their interest, this may be overcome as long as there is external monitoring to ensure all aspects of the CBNRM agreement are being met.

3. The *assisted win-win* case. If the interests of communities and external agents are even less closely aligned, the community may suffer a net cost as a result of CBNRM which meets externally-defined criteria, and we can no longer speak of a true win-win scenario. In these circumstances, CBNRM will require ongoing external support to make it viable, in recognition of its wider benefits and the interest that external stakeholders have in its success. This external support will need to help secure a sustainable source of revenue. There will be a need for contracts to define obligations and external monitoring to assess whether they have been met.

As we will see, *Transfert de Gestion* in Madagascar has, for the most part, assumed a win-win situation, either pure or net¹¹. In section 4 we will examine the extent to which a win-win scenario exists.

IF THERE IS NO WIN-WIN, IS THERE ANY VALUE IN CBNRM AS A CONSERVATION MECHANISM?

If a lack of win-win scenario means that CBNRM can't deliver conservation for free, is it still a useful mechanism? We suggest that external stakeholders should still prefer CBNRM over other mechanisms if it offers comparable conservation performance at lower cost. For example, CBNRM may have lower enforcement costs than state agencies because local communities are on-site, can monitor the forest without mounting formal patrols and might require lower wages for the patrols that are needed. There is a risk that in discussing the complexities of CBNRM, we make other mechanisms, such as state-managed protected areas seem simpler and more attractive. This is a false impression. For example, while many are quick to see the difficulties of motivating communities to achieve externally-defined conservation objectives, they often overlook the similar difficulty of ensuring park personnel do the same, or the impossibility of mounting sufficient patrols to prevent covert activities like hunting. Which mechanism is better will depend on the particular circumstances. Other mechanisms of conserving forests in a democratic and equitable way will not

¹¹ In some ways, it is surprising that GCF, in particular, has made this assumption, given its focus on sub-contracting forest management. Although in GCF COBAs are considered to be concessionaires of the state for *forest management and production* activities, they are not considered to be sub-contractors for state *conservation* activities, at least, there has never been any suggestion COBAs might be paid by the state to conserve forests. This is probably explicable by the fact that the SEF has not historically been much concerned with conservation, while ANGAP is a para-statal organisation. It could therefore be argued that the Malagasy state has never practised conservation per se, and since COBAs have not been seen as an alternative to ANGAP, they have not been seen as conservation concessionaires, at least by some sections of the SEF.

necessarily be more efficient or less costly than CBNRM, even if it requires external support.

A WIN-WIN SCENARIO HAS BEEN ASSUMED FOR CBNRM IN MADAGASCAR

Many of those implementing *Transfert de Gestion* in Madagascar have implicitly or explicitly thought of CBNRM as providing a win-win scenario. They have assumed that COBAs will be self-sustaining after the community institutions have been established. Communities have often received very little support from the external stakeholders prior to signing the contract, and certainly afterwards¹² (Josserand 2001). There has also been very little external monitoring of the conservation performance of COBAs, demonstrating that many view the interests of communities and external stakeholders as being perfectly congruent. For example, the national evaluation of COBAs reaching the end of their initial three year period was restricted to a paper-based activity, with little attempt made to evaluate the COBA's management performance on the ground. Even this limited evaluation was greatly delayed, with some COBAs exceeding their initial three-year period by up to two years¹³.

CONSIDERATIONS FOR ESTABLISHING EFFECTIVE AND SUSTAINABLE CBNRM IN MADAGASCAR

DEFINING THE COMMUNITY

For our purposes, the community can be loosely defined as: a relatively cohesive group of people having some customary or traditional claim to the forest. This will usually be a village or a collection of villages. These are the people who may bear opportunity costs as a result of forest protection, and who will be most closely involved with the forest. In all of the areas with which we are familiar, the local community has traditional or customary claims on the forest, and a direct interest in the way the forest is managed. It is possible that in some areas this situation does not obtain, where the local population is entirely uninterested in the forest, and in such cases some of our conclusions may not hold.

THE COSTS AND BENEFITS OF A *TRANSFERT DE GESTION* CONTRACT

We can view *Transfert de Gestion* as a contract negotiated between the community and external agencies. Each party will agree to and uphold the contract if the benefits of so doing exceed the costs (the possible costs and benefits are outlined in table 3, below). Where the interests of the two parties are entirely congruent (the *pure win-win* scenario), there is no need for a contract. This is because once the institution is established, the interests of all parties will be served and external stakeholders will receive the benefits of community management, without needing to make any contribution. They would receive a 'free lunch'. However, in many cases the special circumstances for a pure win-win scenario will not occur. In the net win-win case,

¹² Although some organisations, such as Durrell Wildlife Conservation Trust, have taken a different line, working closely with their communities over the long term.

¹³ Obviously, the proximal reason why few field evaluations have occurred is a lack of resources made available for the evaluations. However, the underlying reason, including the reason why insufficient resources are directed towards COBA support and oversight in the first place, is that a win-win has been assumed, at least implicitly.

external stakeholders will need to monitor the performance of COBAs, and will likely incur some costs as a result, although they may still get a ‘good deal’. If interests diverge still further, external stakeholders must transfer some of their benefits to the community, in order that the net benefits of the contract are positive.

The balance of costs and benefits to both local communities and donors will be important in determining their attitudes to a CBNRM contract. It will determine whether CBNRM is an effective conservation instrument for donors to invest in and whether communities will engage with such projects in the short term and stay motivated into the long term. In table 3 below we list the possible costs and benefits of a CBNRM contract.

TABLE 3: THE POSSIBLE COSTS AND BENEFITS OF A CBNRM CONTRACT

	Costs	Benefits
External Agencies	(we assume that external agencies will conserve the resource one way or another, thus there are no costs to them of CBNRM, only cost-savings over alternative mechanisms)	Cost-Savings compared to other mechanisms Externalities, including Biodiversity conservation Carbon Sequestration Watershed protection
Community	Operating Costs, including costs of managing and monitoring resources Transaction Costs: costs of agreeing and maintaining a contract with external stakeholders Opportunity Costs	Benefits from better management of forest exploitation (including through solving tragedy of commons) “Warm-glow” of pride in having secure tenure and the legal right to manage their own resources and exclude outsiders Higher prices for products (obtained by acting as a cooperative) Captured value of positive externalities

Note that some benefits are exclusive: if communities capture externalities (in the form of assistance or compensation from external agencies) this reduces the net benefit of the externality to outsiders, or reduces the cost saving of CBNRM compared to other methods. .

Communities will favour CBNRM when the benefits exceed the operating, transaction and opportunity costs of the contract. External agencies will favour CBNRM if it provides a significant cost-saving over other conservation mechanisms, assuming that CBNRM provides a comparable level of conservation benefit (externalities) to those other mechanisms¹⁴. We discuss this in more detail below in section 5.

¹⁴ This logic of course assumes that both communities and external stakeholders perceive the relative costs and benefits correctly. We discuss this further below.

THE BENEFITS OF COBAS OVER INDIGENOUS INSTITUTIONS

When discussing the benefits of COBAs, there is a tendency to assume that there were no traditional community institutions managing natural resource use in Malagasy villages before COBAs were established. This is obviously false: often sophisticated, ever-evolving institutions already exist in communities, which determine the right of individuals to use forest resources. External intervention can easily disrupt these institutions, sometimes with negative results for conservation (Rabesahala Horning 2003).

This view of communities as being powerless to manage their own resources stems from a desire to believe that all activities that are incompatible with conservation, particularly *teviaala*¹⁵, are also detrimental to local people. This view leads to the assumption that a win-win scenario must exist. However, given increasing populations, a stagnant economy and infertility of existing land; it may often be in the interests of rural people to convert forest to agriculture. Thus, the existence of deforestation does not necessarily indicate a powerless community suffering from a tragedy of the commons. We cannot therefore *assume* that COBAs will improve the ability of communities to manage their resources *for their own benefit*.

Therefore, when considering the benefits which COBAs bring to communities, we should focus on those things which COBAs can add to communities. These include the legal power to exclude outsiders, a new degree of tenure security, an improved ability to deal with outsiders and a degree of authority within the community derived from their status as government approved institutions. Note that all of these benefits can only exist *if* external agencies interact with COBAs in a supportive way, providing validation and a favourable legal and policy environment. COBAs cannot exist in isolation from external stakeholders. Note also that we must distinguish between the benefits to external stakeholders and those to communities. For example, COBAs *may* be more successful at preventing illegal logging than traditional institutions, but this will only benefit communities if they can sell the timber themselves, attract ecotourists to undisturbed forests, or derive satisfaction simply from the exclusion of outsiders.

WHAT IS ALLOWED IN THE CONTRACT WILL AFFECT THE COSTS AND BENEFITS

Any *Transfert de Gestion* contract trades-off conservation against extractive uses. Some COBAs have very restrictive contracts, which do not permit any extractive uses; while others can carry out selective timber harvesting. The position of a COBA on this trade-off will determine the balance of costs and benefits to the community: the more constraints placed on the ways in which the COBA can generate benefits, the less valuable the contract will be to the community. On the other hand, if extractive uses are not permitted in the forest, this will tend, other things being equal, to result in greater conservation benefits. Constraints placed upon COBAs will therefore tend to increase the value of the contract to external stakeholders, while reducing it for communities, assuming that no extra assistance is offered to communities in compensation. To an extent then, if a pure win-win scenario does not exist, negotiating a *Transfert de Gestion* contract becomes a 'zero sum game', with regard to the distribution of benefits between the parties. There has to be give and

¹⁵ *Teviala* is the practice of clearing mature or primary forest for agricultural land. A distinction is usually, but not always, made between *teviaala* and *tavy* or *tavy savoka* (and many other local variants) which are used to describe the clearing of secondary vegetation.

take, and an increase in the benefits to one party, results in a decrease in the other parties net benefits. The consequences of this are profound, and we discuss them below.

THE COST OF TRYING TO EXTRACT A FREE LUNCH: REDUCED CONTRACT STABILITY

THE FREE LUNCH

The fact that external stakeholders have considered a contract to be necessary might suggest that they do not actually believe that *Transfert de Gestion* is dealing predominantly with pure win-win cases¹⁶. Nevertheless, and perhaps unintentionally, external agencies have attempted to extract a free lunch from *Transfert de Gestion*. By expecting COBAs to be self-sufficient, whilst also making no provision for the external evaluation of their management, they appear to want to gain the positive externalities associated with successful COBA management at zero cost to external agencies. This is a risky strategy as it may undermine the stability of *Transfert de Gestion* contracts resulting in their failure.

THE STABILITY OF A CONTRACT DEPENDS ON ITS VALUE TO EACH PARTY

It will usually be impossible to determine the exact costs and benefits associated with a contract and how these might change over time, and this is equally true for the parties to a contract as it is for researchers. Communities and external stakeholders may “misjudge” their net benefits, or these may change over time. It is therefore more useful to talk of the *stability* of the contract, rather than to determine whether it will or will not be favoured by the two parties at any one moment. The stability of a party's support for a contract will depend upon the magnitude of the net benefits: the larger they are, the more likely they are to be perceived as positive. Note therefore, that even in a pure win-win case, if the net benefits are marginal for local communities, the contract will be unstable. By transferring some of their benefits to the community, in the form of support for the COBA, the external stakeholders can increase the stability of the contract. Any free lunch which does exist, will come at the price of reduced stability and is likely to be transitory.

¹⁶ Alternatively, it might be considered as more evidence that they hope to gain a free lunch from *Transfert de Gestion*. Currently, the state has little or no de facto control over its forests. By establishing tough rules in COBAs' contracts it appears to want to *increase* not reduce its power over the forests. This is perfectly feasible, *if* it invested the resources necessary to enforce contracts. However, the state and the donors have either been unwilling or unable to do this. We argue that their attempts to exert greater control over the forests will therefore fail.

CONCLUSION

The existence of the COBA must generate real and significant net benefits for communities. Rather than being a win-win scenario, Transfert de Gestion is more likely to be a zero-sum game, at least when it comes to negotiating the fine print of the contract. If external agencies try to skew the terms of the contract too heavily in their favour, the result will be instability and the breakdown of the contract.

SECTION 4

ARE COBAS STABLE? TRENDS IN MEMBERSHIP AND COMMUNITY ATTITUDES

SUMMARY

In this section we investigate whether community support for COBAs is stable. Since COBAs are membership-based associations, the number of people paying membership fees each year can act as an indicator of local support for the COBA. We found that membership has declined significantly for three of the four COBAs which kept records. For the fourth, although membership fell only slightly, renewal rates are low and declining suggesting an imminent collapse in members. Trends were probably similar if not worse in the remaining two COBAs who were unable to provide membership records. We therefore conclude that all COBAs have serious problems maintaining support in the community. This finding has serious consequences as it suggests that members have not perceived any benefits of COBA membership¹⁷ and, since much of a COBA's revenue comes from membership fees, declining membership also means a reduced operating budget.

Interviews showed that understanding within communities of what a COBA actually was were mixed. At one extreme were people for whom even the link to the forest was unclear. For a second group, the COBA's contract was simple: development assistance in return for a halt to *tevíala*. Finally, there were those who understood the COBA's responsibility to actively police the forest, rather than just passively refraining from damaging it. They believed that COBAs should receive assistance to help them protecting the forest, as well compensation for stopping *tevíala*. There is a huge gap between the external vision of *Transfert de Gestion* (securing community tenure and enabling revenue generation from the forest), and these community views. Perhaps unsurprising, given the mismatch between external and community visions, there is widespread disappointment among COBA members with the implementation of *Transfert de Gestion*. Three main reasons were given: 1) the non-appearance of promised development assistance, 2) belated realisation of the strict conservation implications of the COBA. 3) lack of external interest in, or support for, their active forest management after the initial contracts were signed. All of these derive directly from the over-selling of COBAs during the 'race for contracts' and the inadequate follow-up support provided to COBAs. In particular the gap between the 'oral contract', established during public meetings, and the written contract which binds the COBA. These findings have important implications for the stability of COBAs as currently conceived.

¹⁷ Of course, it is also possible that individuals *have* perceived the benefit of the COBA, but believe they can get these benefits without themselves contributing – i.e. that they can free-ride on the contributions of others. We deal with this possibility in more detail below, but suffice to note here that free-riders are a problem faced by all non-statal organisations, and the greater the benefits generated by the organisation, the more likely it is that those who benefit from it will be able to solve the free-rider problem. Therefore, whether low membership is directly a result of insufficient benefit creation, or is a result of free-riding, the root cause is the same: insufficient benefit creation.

MEMBERSHIP

TRENDS IN MEMBERSHIP

There is considerable variation in the way COBAs organise and define their membership. Some levy annual dues, while others ask for contributions as and when money is needed. In all cases, there are often substantial differences between the number of people nominally registered with the COBA (*inscrits*) and the number who actually pay their dues when required. Figure 2 below shows trends in paid-up members since each COBA was formed, for the four COBAs for which we were able to obtain the information¹⁸: Angalampona¹⁹, Tsaratanana, Beforona²⁰ and Belalonana.

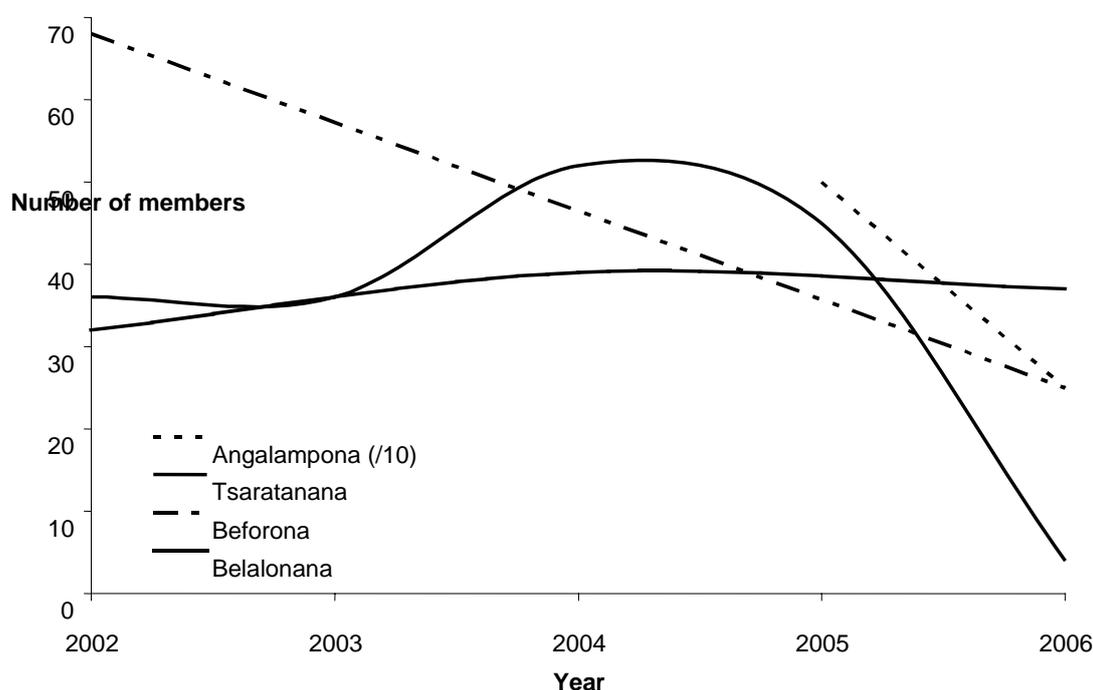


FIGURE 2: TRENDS IN COBA MEMBERSHIP SINCE FORMATION FOR FOUR COBAs

¹⁸ Since it is only just being set up, there is no trend in membership for Anjahamana. Membership figures were not available for Antsatrana, while those for Lazasoa-Lovasoia are difficult to interpret.

¹⁹ Angalampona had 78 members every year from 2002-2004, drawn from each of the clans (*fagnahia*) within the fokontany. These can be thought of as representatives or deputies, representing the entire population. After the difficulties (described in Vokatry ny Ala, 2006, 2007) the COBA, under a new president, changed to the more usual system of individual membership. They claimed a membership (*inscrits*) of 1113 (roughly all the adults in the fokontany) but not all paid the membership fee. The accounts book only shows 100,000 Ar having been received in 2005 for membership (i.e. 500 members). The accounts book showed no membership fees having been received for 2006, but a separate list showed that 250 had so far paid, and these figures were corroborated by interviews with the president.

²⁰ Data were only available for 2002 and 2006.

In three COBAs, membership has declined considerably, even though one showed initial increases²¹. The fourth (Belanonana) appears to be relatively stable. However, more detailed analysis below indicates that even this COBA may be on the brink of a decline in membership.

TRENDS IN MEMBERSHIP RENEWAL

Two COBAs had kept records of the names of members who had paid dues on each occasion enabling us to determine whether those paying dues on each occasion were new members or old members renewing their membership. These COBAs were Belanonana, the COBA which showed stable membership and Tsaratanana, which showed an initial increase in membership before crashing. Figure 3 shows that in both cases, renewal rates are low and declining, which may help to explain the pattern in overall membership shown in Figure 2 above. In the case of Tsaratanana, membership continued to grow through the addition of new members, even as renewal rates of existing members were in decline. It seems likely therefore that the crash in membership numbers seen in 2006 is a result of 'running out' of new individuals susceptible to joining the COBA. Belanonana, the only COBA to show relatively stable membership numbers overall, also shows declining rates of membership renewal. It is possible therefore that this COBA may experience a crash in membership similar to that seen in Tsaratanana.

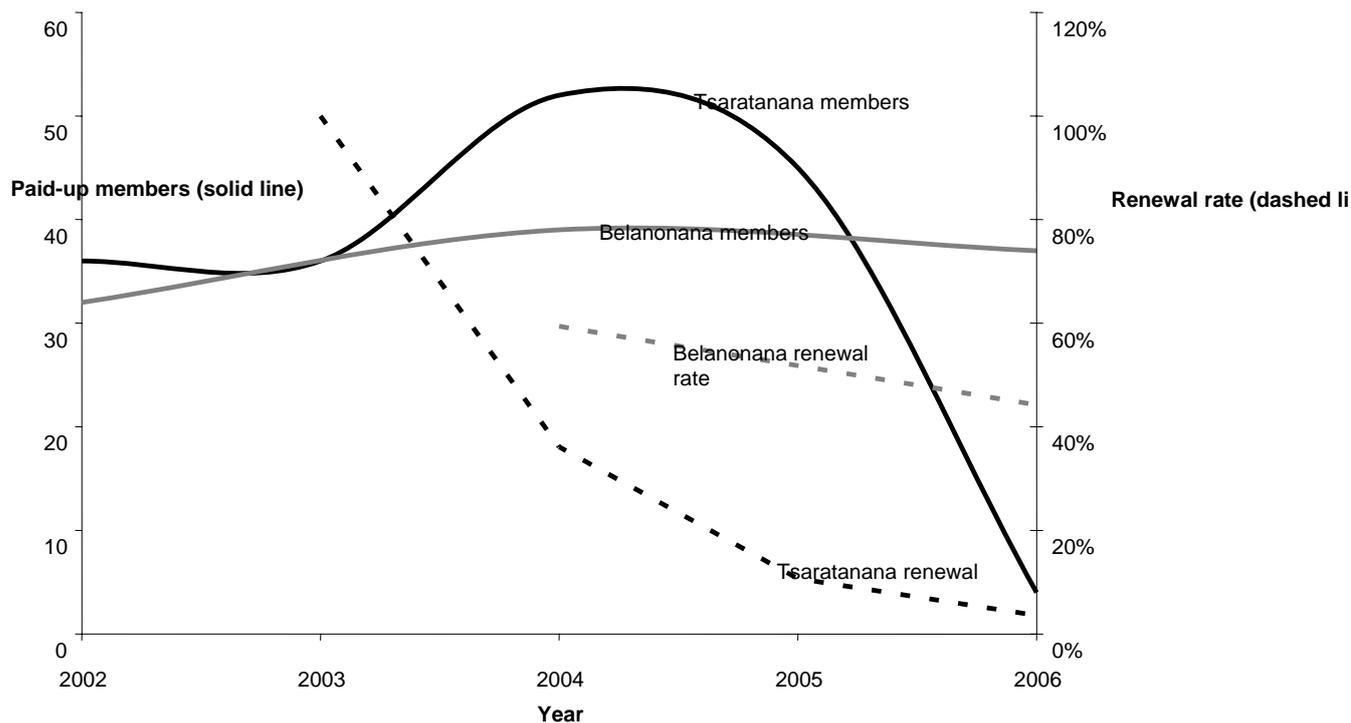


FIGURE 3: MEMBERSHIP RENEWAL RATES FOR TWO COBAs

²¹ It should be noted that in the case of Belanonana, dues varied from year to year. However, the trend in total amount collected is the same as the trend in the number paying.

WHAT CAN WE TELL FROM MEMBERSHIP FIGURES?

COBAs charge community members a small fee to join (often 200 Ar per year). Willingness to pay this fee each year indicates, to some extent, the degree of support for the COBA.

FREE-RIDERS

Low membership numbers and renewal rates do not necessarily mean that the COBA does not generate benefits for the community. Some of the possible benefits of improved management, such as hydrological benefits from watershed protection, may be hard to restrict to members of the COBA i.e. there is the potential problem of community members 'free-riding' without bearing the costs of COBA membership. However, as we explain in Section 5 below, dealing with free-riders is an inevitable transaction cost for any collective association. An inability to prevent free-riding therefore indicates that either: the benefits created by the association are not large enough to cover the transaction costs of dealing with free riders, or that the organisation is constrained by external factors in its ability to channel the benefits it creates appropriately. Either is equally serious.

We believe that both of these problems afflict COBAs. Below we show that COBAs have been severely constrained in their ability to create sufficient benefits to maintain community support (Sections 7 and 8) and in their ability to deal with free-riders (Section 5).

MEMBERSHIP AS INVESTMENT

On the other hand, membership numbers and renewal rates may actually overestimate the benefits received by members. For example, the cost of COBA membership is often very low and affordable even for most rural Malagasy. People may continue to pay the fee, even if they do not experience benefits from the COBA, in the hope that benefits may come from being a COBA member in the future (see below). Membership is then a gamble on future benefits, and the stakes are not initially high. This helps to explain the high levels of membership in the first few years – people invest in the COBA, in the hope of future reward. Gradually, as people downgrade their expectations, they drop out from the COBA.

Thus, trends in COBA membership are an extremely important indicator of the benefits of the COBA's existence to the community, and the stability of the contract. In addition, since membership fees account for the majority of a COBA's income (see section 5), membership numbers are not just an indicator of stability but also a predictor of it.

WHO SHOULD BE A MEMBER OF THE COBA?

The discussion above raises the question of who should be members of the COBA? Should we expect everyone in the community to join, or just those who are most motivated? The COBAs we visited had adopted a range of approaches to this issue, from attempting to include all members of the relevant community (Angalampona) to restricting membership to a relatively small group of people (Beforona). We can therefore distinguish three groups: the community (potential members of the COBA), the members (who have paid a fee to join the COBA), and the COGE (the executive of the COBA).

Two key issues to consider are representation and effectiveness. Especially for GCF, it is by no means certain that the COBA will be truly representative of the community. In principal, twenty people can demand a GCF contract, and take over the management of a tract of state forest, without the unanimous support of other local people who might lay traditional claims to that area of forest. This makes sense if one remembers that the state remains the owner of the forest, and the COBA is merely a concessionaire. It is entirely possible that the COBA may be little more representative of the community than any other concessionaire²². If the COBA does not represent the community, it may struggle to change the behaviour of the community, or to impose any order on the community's use of the forest. In the event that it does succeed, its conservation success may be no more stable or equitable, than that achieved through more traditional conservation mechanisms. We argue below in section 5 and 6 that well-run COBAs, with proper checks and balances to ensure that they are democratically run, probably offer the most efficient system for compensating communities, and a well-respected system of enforcement, because they will represent the community. However, without external checks and balances, we cannot be certain that this will be the case.

On the other hand, if the group of people with a genuine interest in the forest is small, extending the membership of the COBA too widely may overcomplicate matters and prevent the COBA from operating effectively. Of course, more members may mean more money, but to get large numbers of members the COBA may have to lower the costs of dues. For the COBA to succeed, it is therefore essential that it represents the community well enough to achieve its objectives, but still be able to operate effectively. It is also important to recognise that individuals do not have to be paid-up members of the COBA to feel represented by it.

There is no easy solution to this problem, not least because having a genuine stake in the forest will be determined by complex social arrangements, which are not easily captured in an externally defined institution like a COBA. By charging membership fees, COBAs may be able to deter those with little genuine interest from joining, but may also exclude those with a genuine stake in the forest, but who either cannot afford the fee, or do not believe that they will benefit from joining the COBA. Again, it is in everybody's interests to ensure that the COBA represents the right people, without being impeded or hi-jacked by others.

In practice, mediators have attempted to ensure that at least the boundary of the transfer is not opposed by other communities, but the time spent in the field by mediators frequently does not allow for fully inclusive decision making²³. Therefore, the degree to which *Transfert de Gestion* recognises customary tenure is highly dependent on the care taken by mediators.

The implications of this are profound. As we discuss below in section 5, the potential advantage of COBAs over external organisations like ANGAP is that they should be best placed to harness the eyes and ears of the community to the job of forest protection, providing 'passive surveillance' thus reducing costs. They may find it harder to mobilise this if they do not command the support of the community, and this may raise monitoring and enforcement costs. If mediators are forced to take short

²² Often the most active members of COBAs can be outsiders, relatively recently arrived in the community.

²³ It is possible that COBAs will take some time to become representative, as institutional issues are ironed out and disputes settled.

cuts, in establishing and supporting the COBA this may lead to greater costs or reduced effectiveness in the long-run.

In only one case in our sample, Beforana, did the COBA appear to have been controlled by small group of people, who had erected institutional barriers to prevent others from joining, in the hope of restricting benefits to themselves²⁴. In all the other cases the COBA was a relatively open association within the Fokontany or, in the case of the Didy COBAs, the clan. However, because of a low level of interest in the COBA, membership never exceeded 30% of the relevant community (defined as the residents of villages and hamlets bordering the forest), and average rates were much lower (Table 4, below).

TABLE 4: MAXIMUM MEMBERSHIP NUMBERS AS A % OF THE COMMUNITY

COBA	Maximum Membership	Adult Population of the Community	Maximum % of Adult Population
Angalampona	500	1682	30%
Tsaratanana	52	851	6%
Beforona	68	401	17%

Although our definition of the community may be too broad, it is likely to approximate those who would have some customary tenure over forest resources, including the traditional right to convert them for agriculture. Given that the membership fees were for the most part very low, we therefore interpret the low membership rates as indicative of a failure on the part of the COBA to deliver benefits to the community concerned with the forest, and as signalling that the COBA did not fully represent the community.

In several COBAs some sectors of the community, often in outlying hamlets, have been excluded from decision-making on issues like the designation of subsistence use zones, which has led to their being established at a great distance from these excluded hamlets, reducing their ability to harvest forest products within the COBAs rules. This exclusion is as likely to be accidental as deliberate, and reflects the often hurried nature of the process of establishing a COBA²⁵, when issues such as zonation are dealt with in public meetings.

THE LOCAL VIEW OF *TRANSFERT DE GESTION*

Our interviews show that there had been an almost universal enthusiasm for COBAs when they were initially proposed. However, this initial enthusiasm has ebbed considerably, as the COBA or the *Organismes d'Appuis* had failed to live up to expectations. Current views on *Transfert de Gestion* stem from two processes. For the majority of ordinary members and residents, their understanding of the COBA

²⁴ Applicants had to apply in writing, and be considered by a meeting of the COBA.

²⁵ This is not to say that the establishment of a COBA takes a short time from start to finish, quite the opposite, but rather that the time spent *in communities* by mediators and representatives of other external stakeholders tends to be short.

stems from the '*sensibilisation*²⁶, provided by external stakeholders, including the *Organismes d'Appuis* (supporting organisation) and the SEF. In many cases, this remains the dominant influence, since few of the COBAs have made much impact of their own since establishment. For those directly involved in running the COBA, including the *Comité de Gestion* (management committee, COGE), their views were based on the initial *sensibilisation*, but were tempered by their own experience and consideration of *Transfert de Gestion*.

THE MESSAGE OF *SENSIBILISATION*

COBAs are shaped in large part by external forces. Although a community must request a COBA, this request may often be solicited, encouraged and then assisted by an external agency. At some point during the process, and often prior to making a request, most communities receive "*sensibilisation*": a mixture of education and training about *Transfert de Gestion*, combined with an effort to persuade the community of the COBA's worth²⁷.

The message which communities had taken away from the *sensibilisation* consisted of the following 3 elements, though the emphasis given to each of them varied between communities.

1. The COBA was a contract with the state, which they needed to sign in order to ensure future access rights to the forest. Without this contract, their forest might be sold to outsiders. This threat of lost access to the forest was certainly prominent in much of the *sensibilisation*. It is clear that for many people, the COBA was first and foremost a necessity to ensure that they did not *lose* access to the forest, rather than being a mechanism to *gain* or improve access: i.e. it simply maintained the status quo. In return for the status quo, communities had to protect the forest. Awareness of what this entailed varied: most were aware that it meant stopping *teviaala*, and some that it would involve mounting regular patrols by the *polisin-ala* (forest police) to detect and deter infractions.

2. COBAs would bring assistance to the community.²⁸ Sometimes the *sensibilisation* had been very explicit, i.e. "if you establish a COBA, you will get dams / roads etc", for others it was more vague, but in all cases there was a definite assurance that the COBA would bring development²⁹. For some people, this message had even

²⁶ *Sensibilisation* is perhaps best translated as awareness raising or public education. However, the aim is often to change attitudes as well as convey information.

²⁷ The balance between education and persuasion varies from community to community, but nowhere is persuasion absent. In fact, on a national level, there has been a concerted effort to "sell" the concept of *Transfert de Gestion* (Josserand 2001, Antona *et al* 2004, pers. obs.)

²⁸ This link was made for a second time, at least in Fianarantsoa province, during meetings to explain the NAPs to COBA presidents and mayors: COBAs were told that they had a choice of whether to join the protected area or not, but were told that in joining they would get development assistance (Pers. Obs.) It is not clear on what basis such assurances were made, or whether this development assistance has in fact been budgeted for.

²⁹ Often the development which would be brought was unspecified. *Fandrosoana*, meaning development, has achieved the status of buzzword in rural Madagascar, with President Ravalomanana's slogan *Fandrosoana haingana* (rapid development). Typically, rural communities equate this with, depending on local circumstances, support for transport infrastructure, schools, hospitals, dams or other agricultural assistance.

eclipsed the first and the COBA was seen simply as a community association that would bring development assistance to their community. For these people, the link to the forest was unclear.

3. A third message was that COBAs would be able to generate revenue for the community from the forest. Where a COBA had the right to carry out selective logging, their hopes usually centred on this, and even COBAs which did not currently have production rights hoped that they would in the future be granted. In the case of the Didy COBAs, our informants said that they had been promised that good performance in the first three years of the contract would lead to production rights being granted. For the others, they often had great expectations that their forest would be visited by foreigners, who would pay to enter it.

WHY DID THE COMMUNITIES ESTABLISH COBAS?

For communities the “oral contract” which the SEF and the *Organismes d’Appuis*, entered into during the *sensibilisation* process is at least as important as, if not more important than, the written contract with the state. It is striking that the latter does not specify many of the benefits most keenly expected by the community: development assistance, alternatives to *teviaala*, revenue generation, ecotourists. These are not mentioned in the contract, nor are the mechanisms by which they might be achieved, and no external agency is required to deliver them or to assist the COBA in providing them. The contract merely specifies the necessity to refrain from *teviaala*, the restrictions placed upon forest use, the requirement to actively protect the forest, and the role of the SEF in assisting the COBA. When we ask ourselves why communities establish COBAs, we have to take into account their perceptions of what they were signing up for. As others have noted (e.g. Josserand 2001) there was a race to sign contracts, under pressure from donors including the World Bank, and consequently many field agents were highly persuasive in selling the case for a COBA.

For communities therefore there was a large element of persuasion and threat. Persuasion that by establishing the COBA they would receive development assistance, and threats that if they did not establish a COBA, they would lose their existing access to the forest. Meanwhile, they were also aware of the government’s hostility towards *teviaala* (and indeed any slash-and-burn agriculture, even outside of the forest) and the possibility of a crackdown on field burning even outside the forest. Such threats carry weight since many communities have at least some knowledge of the areas that have been declared as national parks, where communities have indeed lost all rights to the forest. For communities then, establishment of a COBA represents both an attempt to minimise losses (rather than maximise gains) at the hands of changing government policy, and also a hope or expectation that they will benefit from external assistance. In interviews, they gave little emphasis to any benefits that they expected might accrue directly to the community through improved management of the forest, aside from the ability to obtain profits from selective logging or possibly ecotourism. Therefore, communities feel compelled to establish a COBA, to prevent their forest being sold off, and to minimise their loss of rights.

More positively, the decision to establish the COBA also represents an investment on the part of the community. The contractual nature of the COBA is keenly understood, and communities are content to have to deliver on their obligations in order to receive the outside assistance they expect in return. However, the contractual obligations of the community and external agencies are viewed very differently by the two sides. For the community, the relevant contract is the oral contract, which includes all of the obligations mentioned in the *sensibilisation*. For outside organisations, their obligations are much more modest, and restricted to those specified in the contract.

In fact, for many members of the community outside of the COGE, the regulations specified in the written contract are much less understood. This doesn't just represent a selective memory, it also reflects the fact that many COBAs contracts do not reflect even the external view of *Transfert de Gestion* as put across during the *sensibilisation*. For example, despite the external view of *Transfert de Gestion* as being focussed on sustainable forest use, subsistence use zones are often severely limited by the contracts, while the focus is on conservation. It also reflects the fact that few will ever have read a copy of the contract.

CURRENT VIEWS OF *TRANSFERT DE GESTION*

While many in the community may have attended public meetings, or spoken to those who have, very few will ever have read or even seen the COBA's contract or *cahier de charges*. Opinions are therefore based on rhetoric rather than the details of the contracts. A number of different strands can be characterised.

For those whose understanding of the COBA was haziest, even the link to the forest is unclear. For these people, the COBA is a development association (similar to, and sometimes confounded with the *Koloharena*), intended to bring development assistance to the community.

A second group had more understanding of the COBA's purpose, but not its structure. These people valued the opportunity to secure access to their forest and a common motivation was to prevent it falling into the hands of outsiders. For these people then, the provision of alternatives to *teviaia*, in the form of agricultural and other development assistance was crucial. Like the first group, they also had high hopes for the development which the *sensibilisation* promised that the COBA would bring to their society. For these people, the COBA's contract was a negotiation with the state (and its intermediaries, the NGOs and OAs): secured access and development assistance in return for a halt to *teviaia*. Not all necessarily understood the reasons for the prohibition of *teviaia*: outsiders have always been trying to stop it, ever since the French arrived. That the government was against *teviaia* was understood, but so also was its historical impotency. COBAs therefore represented a more participatory way of meeting this state objective, which offered genuine alternatives in exchange for cessation of *teviaia*³⁰. The link between agricultural

³⁰ It should be noted here that attitudes to *teviaia* varied from place to place, and within communities. Where forest was scarcer (e.g. Anjahamana), there were those, particularly older people, who expressed the view that *teviaia* should be stopped, before the forest was completely lost. In areas where forest was still plentiful, there was less of a conservationist tendency. This is unsurprising: as forest becomes rarer, its marginal value as intact forest (e.g. for the supply of forest products) increases. This partly explains the tendency for forest to become fragmented, and for small fragments to remain long after the "frontier" of expansion has passed on. In Anjahamana and elsewhere, indigenous institutions had already protected small areas of forest close to the village, because of their importance for forest products. These areas were actually left out of the COBA by the community, since they were already being managed. Ironically, this means that in law, the community has less secure tenure of these forests than they do over the ones that were not yet the subject of strict community management. This all serves to illustrate that communities may recognise an "optimal" approach to *teviaia*, and that it is viewed quite pragmatically, in a way that bears little resemblance to the naive view of *teviaia* espoused by many conservationists as being entirely "bad" for communities. As noted in Section 7, *Transfert de Gestion* does not help communities to achieve "optimal" *teviaia*, i.e. that pattern and level of *teviaia* which maximises the welfare of the community (howsoever defined).

development and stopping *teviata* was very clear. *Teviala* is very often seen as a response to increasing pressure on land, therefore if the community stops *teviata*, the government should help them to increase the productivity of their existing land. These people did not see the forest as having an important role in providing alternatives. Most of the income generating proposals put forward by communities (apart from logging and attracting ecotourists) had little or no link to the forest.

Those with the greatest understanding of the COBA shared the views of the last group, but also had a keener understanding of the constraints which bound the COBA, and of its role in actively protecting and managing the forest. They knew about the restrictions placed on the use of the forest, which represented a decrease in access rather than merely maintenance of the status quo. They also knew that the COBA was expected to actively police the forest, rather than just passively refraining from damaging it. For these people then, the conservationist role of the COBA was much clearer, and they were acutely aware of the external interest in their work. They were aware that COBAs produced benefits for the nation and saw the COBA as a part of the state's system of forest protection and management. One aspect of this view was that being a member of a COBA was seen as being a contribution to the nation, as well as to one's community. As a consequence of this view, they believed that COBAs should receive assistance from outside agencies, to help them do their job of protecting the forest, and not simply as compensation for stopping *teviata*. External validation of their efforts would go a long way towards strengthening the COBA. See recommendations 2.1, 6.4 & 7.7.

LOCAL DISSATISFACTION

Unsurprisingly, some individual COBAs had experienced teething problems involving political disputes and local power struggles, and this had affected people's views of the COBAs. More significantly, however, was our finding that throughout the study area people felt let down by the whole process of *Transfert de Gestion*. The causes of this disenchantment were threefold, and are listed briefly below:

1. Lack of development assistance. In all cases people lamented the perceived failure of *Organismes d'Appuis* to live up to their promises of providing development assistance and alternatives to *Teviala*.
2. Realisation of the strict conservation implications of the COBA. In some cases (e.g. Tsaratanana) where the COBA had been successful in enforcing strict protection of the forest, people had begun to realise the implications of the COBA for their lives. In others (e.g. Didy), people viewed the initial three year contract as being a test of their management ability, and were impatient to be rewarded with opportunities to carry out extractive activities, and envious of nearby COBAs who had already done so. They were very clear that this view led directly from promises made when the COBA was established.
3. Lack of interest in, or support for, their active forest management. For those who perceived the COBA's role in serving the wider interest, and who had also come to appreciate the significant burden which active protection placed upon the COBA, the lack of external interest and support was a disappointment (See recommendations 4.4, 5.4, 7.5). In most cases, COBAs had received little or no validation or monitoring of their efforts. We encountered considerable surprise in most COBAs when we went to the forest: they reported that other visitors (mediators, project staff etc) had rarely actually entered the forest, and often did not leave the main village. They viewed the active policing of the forest as an unsustainable burden, without modest external assistance. It is important to stress here that the apparent disappearance of external

interest in their work, following the initial attention, was at least as big a disappointment as the lack of tangible support. Some may also have felt that the threat of losing the forest altogether had receded, since outsiders had taken little interest in their forest since the COBA had been established.

In the sections that follow, we explore in greater detail the many and varied problems associated with the current implementation of *Transfert de Gestion*, many of which have been perceived by communities, and our analysis of these issues has been considerably enhanced by our discussions with them.

CONCLUSIONS

There is a yawning gap in perceptions of *Transfert de Gestion* between the communities and external stakeholders. Communities feel let down by the perceived failure to deliver on promises of development aid, but also by the lack of interest in their work. Much of this gap stems from the hurried implementation of *Transfert de Gestion*, and the lack of investment in ongoing support.

The officers of the COBAs often keenly understood the contractual nature of *Transfert de Gestion*. They have readily embraced the idea that through the COBAs, communities can take charge of their forest, for their own benefit and the benefit of the nation. However, they feel that they should not be alone in their efforts, nor should they go unrewarded and nor should their ability to benefit from their forests be too tightly constrained. The disappointment that so many feel with respect to the COBA is evidenced by the declines, some catastrophic, in membership in most of the COBAs we visited.

SECTION 5 REVENUES, OPERATING AND TRANSACTION COSTS

SUMMARY

COBAs are expected to cover their operating costs through raising revenues. They can raise revenue from within their community through membership fees, fines and by selling permits to cut wood and harvest other forest products. They can also raise revenues from outsiders such as people wanting to harvest in their forests, visiting tourists and researchers, and from external donors. Most sources of revenue depend on the COBA adding value through its management and therefore creating benefits for those it taxes. This illustrates the importance of benefit creation, which is discussed in sections 7 and 8.

For the three COBAs in our sample that had kept clear records, we found that nearly 100% of the revenue which passed through their books was from membership fees. We looked at how these COBAs had spent this revenue and found that more than 60% represented a net transfer out of the community. These were mostly expenses arising from the external obligations of *Transfert de Gestion*.

All organisations have transaction costs, costs arising from bringing together disparate individuals to agree terms, exchange goods and perform services. We briefly review factors affecting COBA transaction costs and show that they are likely to be higher for COBAs than for other indigenous institutions. This is because of the COBA's dual role: serving the community *and* external stakeholders.

Despite these extremely imposed costs, COBAs may be able to carry out many of the conservation objectives of the state at lower costs than the state could otherwise do. The benefit of delegating this work to COBAs depends on three key characteristics of the activity in question: whether or not it is completely prohibited; the ease with which it is detected; and whether or not it is practiced by community members. Our analysis suggests that COBAs have the potential to offer significant cost savings if enforcement is delegated to them. An efficient solution may involve subsidising COBAs to perform this role, but effective back up and monitoring of the COBAs would be needed.

The COBAs we visited had all made some effort to carry out the enforcement responsibilities delegated to them by the state. The greatest effects are probably in the exclusion of outsiders from illegal mining and logging. COBAs in at least four sites had made formal reports to the SEF of illegal logging or mining in their forests. However, incentives for the communities to play this role are currently weak as external bodies do not provide the support and encouragement necessary to maintain motivation or the necessary back up.

It is difficult to compare the operating costs of COBAs with that of alternative forest management mechanisms (e.g. ANGAP-run national parks) but available data shows that COBAs may have extremely low operating costs. COBAs could therefore increase the scale and effectiveness of their operations significantly and, if they delivered the conservation benefits expected of them, still offer a very low-cost mechanism.

RAISING REVENUE

COBAs need to raise revenues to cover their expenditures, by levying dues or taxes on forest related activities, products and services³¹. These taxes can be levied either on members of the community or on outsiders. We consider these two forms of taxation below. In both cases, the ability of the COBAs to raise revenues will usually depend on their ability to generate benefits through their management. Note that revenues are not the same as benefits. Revenues are the money or contributions ‘in-kind’ that the COBA receives. The benefit generated by the existence of a COBA is the value added by the COBA through its activities. Benefits may accrue to members of the COBA, other individuals in the community, or outsiders, while revenue accrues to the institution of the COBA itself³². We discuss the various ways in which COBAs can create benefits for their members or outsiders in sections 7 and 8. In this section, we confine ourselves to discussing the COBA’s revenues.

TAXING COMMUNITY MEMBERS

Since COBAs are membership-based, the taxes (including membership fees) that the COBA can raise must have the support of the community. They will therefore depend on the benefits the COBA provides as people will only support the tax if the benefits of the management it pays for exceed the costs of the tax itself. For example, a tax on a forest product will only be supported if the community perceives a benefit from the COBA’s management of that product. In addition, any tax will obviously depend on the COBA’s ability to enforce the tax and to monitor non-payment³³. The higher the tax in relation to benefits, the greater the incentive to evade it, the lower the community support and the more difficult it is to enforce. The revenues that COBAs can raise from the community will be a proportion of, and will not exceed, the benefits it generates for that community.

Discussion during the village workshops demonstrated that this was widely understood. For example, if people did not see any benefit of the COBA’s management in terms of watershed protection, they did not see any justification for a tax on water use³⁴. It was also clear that COBAs were declining to enforce many of

³¹ This includes contributions of labour or payments in kind, whether it is members donating rice to feed monitoring patrols, or the president spending time on COBA administration. In the latter case, the president’s only “payment” may be enhanced respect in the community, which of course depends on the regard with which the COBA is held, and therefore on it benefiting the community.

³² An analogy may help here. A government’s *revenue* is the money paid into its coffers in tax. The *benefits* of the government’s existence are felt by members of society, e.g. the reduction in crime due to policing, better environmental quality due to regulations.

³³ Collecting taxes therefore add to the operating costs of the COBA.

³⁴ In this case, the community saw watershed protection as a service provided by the forest, not the COBA. They saw the maintenance of the forest as resulting from their stopping *teviaala* rather than from any activity carried out by the COBA. Thus, they felt that community members were already contributing directly to watershed protection through not practising *teviaala*, and therefore saw no reason for them to pay again in the form of a levy to the COBA. Unsurprisingly, however, they enthusiastically supported the idea that farmers downstream should pay the community for stopping *teviaala*, and viewed the COBA as an appropriate mechanism by which this might be achieved. In a different community, watershed protection was seen as resulting from the COBA’s actions, and was viewed as a benefit of having a COBA.

the taxes set out in their *cahier de charges*, sensing that they were unreasonable. In some communities, mediators appear to have 'egged on' COBA members, encouraging them to establish high taxes on forest products which had no hope of ever being collected.

TAXING OUTSIDERS

OTHER LOCAL PEOPLE

Because the rules of a COBA are not subject to the wishes of outsiders (except the state), it is possible that COBAs could tax outsiders who use their forest without creating any added benefit for these outsiders. However, the revenue raising potential of this strategy will depend on the COBAs enforcement capabilities, the degree to which the COBA have a monopoly over the resource in question and on whether there are close substitutes for the products found outside the forest. If a product is easily available in another part of the forest, or if a non-forest product can be used as a substitute, this will reduce their willingness to pay a tax to the COBA.

COBAs as a group do not have a monopoly on forest resources, because most of the forest in any area is not transferred to COBAs. Individual COBAs have even less of a monopoly. Even in areas where forest is relatively scarce, e.g. Anjahamana, important forest areas have been excluded from the transfer (see section 7). In addition, most forest products are either found outside the forest as well, or have close substitutes which are. For example, bamboo grows outside the forest as well as inside it, while cultivated weaving plants such as *ravindahasa* and *herefo* (*Cyperus spp.*) can substitute for *Pandanus* spp. Because a COBA's jurisdiction is limited to the forest transfer, this limits their ability to levy taxes on most forest products. In fact, some COBAs have recognised this limitation, and have attempted to levy taxes on products sourced from outside the forest, including charcoal (Vohidrazana) and bamboo (Angalampona). In the latter case, the bamboo was purposefully cultivated by the individual, and the COBA's actions had caused some resentment, and might not be repeated.

TOURISTS AND RESEARCHERS

COBAs can extract a tax from ecotourists and researchers visiting their forests (see recommendations 3.6, 7.2). This process is already underway in some COBAs (outside of our sample) and has the potential to raise significant revenues³⁵. The COBA's ability to attract ecotourists or researchers is likely to depend on them carrying out management to protect the forest and improvements to facilities, i.e. once again it will depend on the benefits they create.

³⁵ Probably the most successful example to date is Anja, which manages a tiny fragment of forest (with habituated ring-tailed lemurs, *Lemur catta*) conveniently located on the side of the Route Nationale 7, just south of Ambalavao. Another COBA just beginning to tap the potential for ecotourism is Andrambovato/Ambalavero, which manages forest including a spectacular rocky viewpoint, right next to one of the stations on the Fianarantsoa – Côte Est railroad. It is, of course, no accident that these pioneers have exceptional transport links, and both have also received considerable external assistance in the early stages. However, as we argue in sections 8 and 10, small scale backpacker ecotourism could be developed in any COBA, and would make a significant difference

EXTERNAL DONORS

Finally, COBAs could get support towards their operating costs from external agencies. This would obviously depend on them generating benefits (such as conservation benefits) for these agencies, and we discuss such 'payments for environmental services' below in section 8. Once again, revenues received will not exceed benefits generated, although these may be considerable.

HOW HAVE COBAS RAISED REVENUES?

Of the six COBAs in our sample, only three were able to provide complete and up-to-date records of their revenues, but from what we could piece together from interviews and other records, the general pattern was universal to all COBAs. The source of revenues for these three COBAs is shown in Figure 4, below.

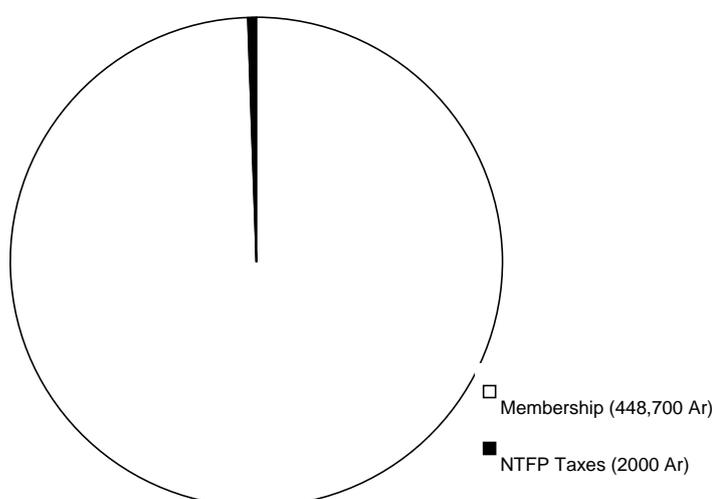


FIGURE 4: REVENUES BY SOURCE, SUMMED ACROSS THREE COBAs.

The overwhelming majority of COBA revenues come from membership fees, showing that COBAs have not been able to raise taxes on forest products. Nor have they received any direct financial assistance from external agencies, or raised any revenues from visitors to their forests.

EXPENDITURES AND OPERATING COSTS

TYPES OF EXPENDITURE

The types of COBA expenditure and operating costs can be classified according to whether they represent an outflow from the community, whether they represent a transfer within the community or whether they are spent directly on forest management.

External includes all expenditure which both occurred outside of the Fokontany, and which could be attributed to the need for COBAs to comply with external requirements. This includes fees paid to organisations which supported the COBAs application for a contract; expenses incurred when sending the President outside the area on official business (usually for the signing of the contract or for meetings with external agencies); as well as small costs of purchasing stationary items for record keeping.

Forest Management includes any expenditure associated with management activities in the forest. In fact this included only one item (purchasing of paint to mark the COBA's boundaries). Since the paint was bought outside of the community, it could be argued that this should be included in the previous category. The payment of *polisin-ala* did not enter the records kept by COBAs either because they had not actually been paid, or because they were paid in rice, contributed directly by the members.

Transfer includes any expenditure that represents a direct transfer within the community. This was principally expenditures associated with celebrations or ceremonies to mark the signing of the contract, particularly in Didy where each COBA contributed part of the price of a cow to be slaughtered to mark the occasion.

HOW HAVE COBAS SPENT THEIR REVENUE?

Again, only three COBAs were able to provide records of their expenditures, but based on our interviews these were broadly representative of the whole sample. The breakdown of expenditures is shown in Figure 5, below.

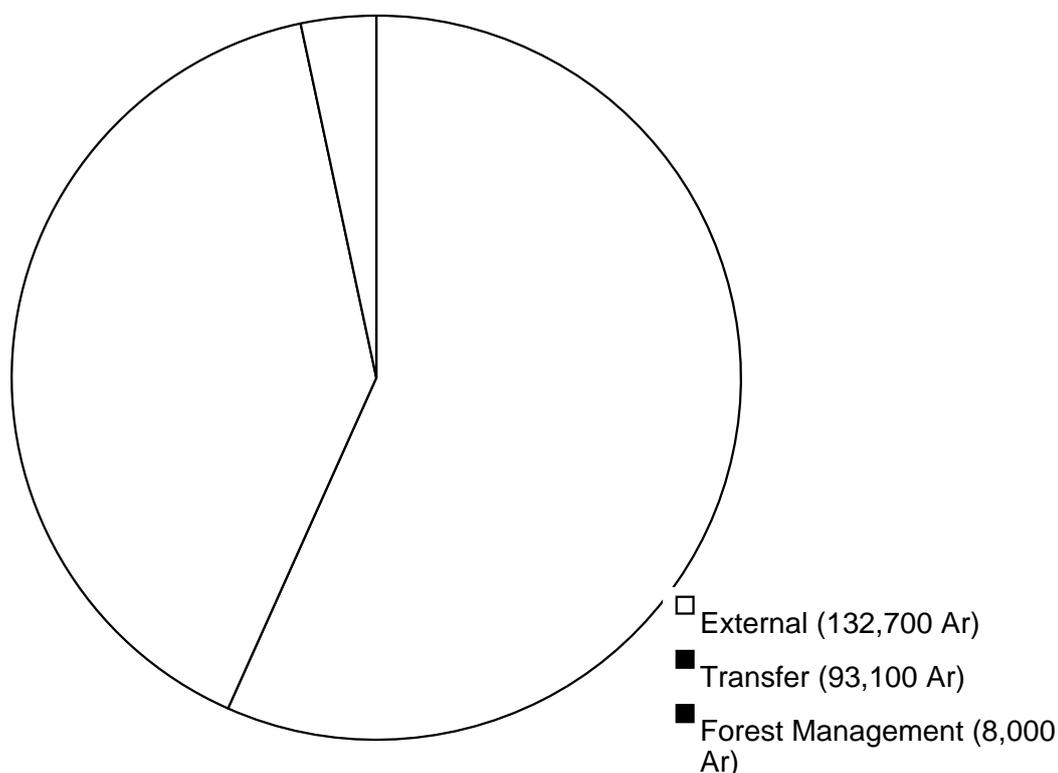


FIGURE 5: EXPENDITURES AS A PROPORTION OF SPENDING, AVERAGED ACROSS THREE COBAS

COBAS' EXTERNAL REQUIREMENTS ARE A FINANCIAL DRAIN ON COMMUNITIES

Two things are clear from the results above. First, COBAs represent a *financial* drain on the communities in our sample: all of their revenues were raised within the community, while 60% of their expenditures caused money to leave the community. Second, the majority of the financial costs associated with running a COBA are due to its obligation to interact with external agencies, especially the SEF. In particular,

travel costs to regional centres are very significant relative to local incomes³⁶. Note that this does not necessarily mean that COBAs are a net cost to communities overall (though the evidence for this is presented below), but it does emphasise that COBAs are heavily shaped by their contractual obligations to external agencies. It also means that if external agencies were inclined to support COBAs financially, they could considerably reduce their financial operating costs by simply meeting the costs of their own interactions with the COBAs.

TRANSACTION COSTS

If a COBA has the potential to generate net benefits for the community, we predict that it will be well supported and stable. However, for this to be the case, the community must be able to organise itself to support the COBA. This is the problem of collective action and can be framed in terms of transaction costs. These are the costs of bringing together disparate and heterogeneous individuals to agree terms, exchange goods, perform services.

Transaction costs are like the friction that makes an engine less efficient: they dissipate benefits and provide a drag on the operation of the institution. In COBAs, one example would be if members of the COGE needed to walk to another village to attend a meeting. The cost of walking to the village, in terms of the time and energy it takes, are a transaction cost born by the community. Since transaction costs subtract from benefits, a successful COBA will need to minimise its transaction costs. Several features of COBAs, most of which stem from their role as a partly external institution are likely to increase their transaction costs compared, for example, with entirely indigenous village institutions.

EXTERNAL AGENDAS AND SOCIAL COHESION

Pre-existing institutions that are well established may minimise transaction costs in many ways, including by relying on established tradition that most people understand. This minimises the transaction costs associated with dissemination of information and conflict resolution. In contrast, COBAs represent a new and often poorly understood institution, which may be weakly aligned to existing institutions and represents a real break with customary ways of managing the forest. Our experience suggests that on some measures at least, COBAs may be more successful in communities that lack strong traditional institutions (e.g. Beforana). This may be because COBAs in these communities do not find themselves in conflict with existing institutions. COBAs may also offer the greatest benefit to these communities, which currently lack institutions of their own. However, it should also be noted that such communities may also have lower levels of social cohesion, which will tend to make any collective enterprise less successful. It is perhaps for this reason that COBAs in

³⁶ Some, including ERI, reimburse travel expenses, but others including the SEF do not, and therefore COBAs incur expenses when reporting illegal mining to the SEF, for example. There also appears to have been some difficulties when presidents have been advanced money by the COBA to attend a meeting, and have then received per diems. This results from a lack of clarity over the purpose of per diems, differences in practice between agencies, and a lack of transparent information given to the COGE and ordinary members. Most COBAs seem to lack agreed procedures for dealing with this issue. This is yet another example of how COBAs have been set up with minimal regard to their role in wider society.

these communities may cease to be community institutions at all, and rather be dominated by a small group of people (e.g. Beforana, Vokatry ny Ala 2007).

SIZE

COBAs are often established based on Fokontany, or on sub-divisions within large Fokontany. This means that even if the “community” is restricted to those living in fokontany villages bordering the forest, the number of people potentially implicated in the COBA may be from several hundred to over a thousand (in our sample, 400-1600 adults). This may be an appropriate scale, given the understandable desire of external agencies to minimise the number of entities with whom they work. However, it does mean that COBAs are rather large for community institutions. This will increase their transaction costs for a host of reasons. For example, they will need formal management structures and members of the COGE will have to travel farther to meet. Thus, the requirement for COBAs to interact with external agencies has implications for their institutional structure and therefore transaction costs.

DISTRIBUTING BENEFITS AND DEALING WITH FREE RIDERS

One problem with all institutions is that of free-riders: individuals who benefit from the COBA’s actions without contributing. External agencies have not always been helpful to COBAs in dealing with free-riders. Development assistance to villages is rarely explicitly linked to their having an active COBA, and assistance to individuals is not limited only to those who are members of the COBA. For example, in Angalampona, a number of dams have been built to help increase the area of land farmed for irrigated rice. We found that one-third of farmers served by the dams had expanded their irrigated rice as a result and three-quarters said that the dams had increased their yields. However, despite the role played by the forest in ensuring water supply to the dams, the COBA was not implicated in the management of the dams, and membership of the COBA was not a requirement for those who were served by the dams. In fact, a separate organisation had been set up to manage each dam³⁷, and this organisation did not have any formal links to the COBA (see recommendations 5.1-5.6).

ARE COBAS AN EFFICIENT CONSERVATION MECHANISM?

COULD COBAS PROVIDE CONSERVATION CHEAPLY?

The government’s vision for natural forests is clear: no deforestation; no illegal mining or logging³⁸; no unauthorised settlements; extractive use only under certain circumstances, and in certain areas. COBAs may be able to carry out some of the monitoring objectives of the state at lower costs than the state could otherwise do. If they could, the efficient option would be to support communities to play this role. The benefit of delegating this work to COBAs depends on three key characteristics of the activity in question: whether or not it is completely prohibited; the ease with which it is detected; and whether or not it is practiced by community members. We can therefore identify at least six groups of activities, summarised in Table 5, below.

³⁷ *Association des Utilisateurs d'Eau.*

³⁸ The issue of whether any logging will be permitted in the NAPs, or in COBA forests, has yet to be fully resolved (see recommendations 1.1, 2.8 and 4.3).

TABLE 5: ILLEGAL FOREST ACTIVITIES CLASSIFIED BY EASE OF DETECTION, REGULATORY REGIME AND PRACTITIONER

		Ease of Detection			
		Easy	Difficult		
Regulatory regime	Prohibited	Mining, Logging	Hunting	Outsiders	Practitioners
		Teviala, Settlements	Hunting	Community	
	Regulated	Some settlements & logging, major NTFP extraction	Most NTFPs	Community	

EASE OF DETECTION

For easy-to-detect activities, like *tevia*la, illegal logging and mining, the advantages of using COBAs are likely to come from their lower costs (they demand lower wages, and are already on site). The state will still need to support COBAs, since the activities are often perpetrated by powerful outsiders, but the state's costs would be lower if day-to-day patrolling was done by the COBAs. With activities that are more difficult to detect, the cost advantages of COBAs will be even greater, since more frequent patrolling will be necessary to catch perpetrators, and the use of local knowledge to find out about them will be more important. However, it is also more difficult to devise monitoring regimes to determine whether COBAs are doing their bit, as these either need to detect signs of the activity or measure changes in the abundance of hunted species. Nevertheless, a cooperative COBA will add a very important multiplier to any state-sponsored efforts. Whoever bears the responsibility for preventing hard-to-detect activities, they face a considerable challenge³⁹.

OUTSIDERS VS COMMUNITY

If an activity which is banned was only ever practiced by outsiders (this may be the case for mining and logging) there is no conflict of interest for COBAs in enforcing prohibition. If however, the activity was predominantly practised by community members (e.g. *tevia*la, or new forest settlements), there is a conflict of interest for the COBA, and successful enforcement increases the opportunity costs for the community in the absence of compensation. We might therefore expect COBAs to be more assertive in enforcing bans on outsiders than on community members, in the absence of significant external pressure and incentives.

³⁹ The cost of doing an illegal activity (the deterrent) can be represented as the *expected* punishment i.e. the probability of being caught multiplied by the punishment if caught. Rational actors might be expected not to engage in the activity if the costs outweighed the expected benefits (assuming they are risk neutral). Therefore, to provide an adequate deterrent, it may be possible to compensate for low probability of detection by increasing the punishment that will be given in the event that the perpetrator is caught. However, in reality people do not always respond as we might expect them to, with low detection probabilities with high punishments. A more productive approach, drawing more on sociology than economics may be to try to achieve a change in social norms, such that these behaviours become "socially unacceptable". Clearly, this requires the support of most of the community and cannot be achieved simply by external pressure.

REGULATION VS PROHIBITION

If an activity is regulated rather than banned, there will often be more incentive for COBAs to enforce the regulations governing it, assuming that the regulation increases the productivity of the resource (e.g. by solving a tragedy of the commons, see section 7). There will still be opportunity costs to regulating the activity (in addition to enforcement costs), but at least the COBA has an incentive to enforce because benefits do result. Few benefits result from enforcing a ban unless the activity had negative effects that go beyond the resource itself. For example, if regulating the harvesting of crayfish (e.g. restricting the sizes that can be taken) increases the productivity of the resource, there is a benefit to regulation. There will be little benefit to enforcing a ban. On the other hand, banning mining may still bring benefits, since it has negative effects (e.g. on water quality) which go beyond the resource itself (minerals). We discuss this further in section 7.

Thus, we might expect COBAs to be less successful at enforcing bans than regulation, since there may be little direct benefit to them. For example, COBAs may stand to gain little by preventing outsiders or the community from harvesting timber illegally, if there is little likelihood that they will be able to harvest it themselves. Some types of regulation will be easier to detect than others. For example, seasonal restrictions will be easier than zone-based restrictions, since it is easier to know that a product has been harvested than to know from where it has been harvested (See recommendations 2.4 and 2.5).

In conclusion, our analysis suggests that COBAs have the potential to offer significant cost savings if enforcement is delegated to them. These cost savings will be greatest for hard-to-detect activities, but monitoring of a COBA's performance will be necessary, combined with appropriate incentives.

A NOTE ON THE *DINA*

Traditionally, *dina* were community rules established by the community with the broad consent of the community. In the context of *Transfert de Gestion*, the word *dina* refers to the rules governing the COBA's management of the forest, which are supposed to be accepted by the traditional authorities in the community, and also ratified by the formal legal system in a *tribunal*. The idea behind the *dina* is that it should have greater moral authority in the community than a rule simply imposed from the outside.

However, in some cases these *dina* appear to have been externally imposed and bears little relation to the original concept of the *dina*. In such cases it therefore has little or no moral authority in the community. The authority of the *dina* depends on the support of the community. If the community strongly supports the COBA and values it highly, the *dina* will have genuinely come from the community, and it will have moral authority. As in so many other things, there is no shortcut here. Support for the *dina* depends on support for the COBA, not the other way round, and this depends on the time and care taken in setting up the COBA, and, critically, on the benefits delivered to the community by the COBA (see sections 7 & 8).

ARE COBAS DELIVERING THIS BENEFIT?: EVIDENCE FROM THE FIELD STUDY

The COBAs we visited had all made some effort to carry out the enforcement responsibilities delegated to them by the state. They had attempted to exclude outsiders (principally from logging and mining), prohibit *teviaala*, and patrol their forest. It was difficult to determine the frequency with which *polisin-ala* have carried out

patrols of their forest. Most COBAs had agreed payments for *polisin-ala*, but since these were sometimes paid in kind (in rice), and not entered into the accounts, they were difficult to verify. Interviews suggest that COBAs have carried out some patrolling and enforcement activities, but not as many as planned, and that they may have tailed off as enthusiasm waned.

We were unable to determine whether COBAs had reduced or eliminated deforestation, since no baseline surveys were made of the forest edge before the signing of the contract (see recommendation 2.2). Where possible, we mapped the forest edge as it stood now, so that future assessments could be made (see Vokatry ny Ala 2007). We think it is likely that *teviaala* has been reduced in these areas since the contract was signed, but the greatest effects are probably in the exclusion of outsiders from illegal mining and logging. COBAs in at least four sites had made formal reports to the SEF of illegal logging or mining in their forests.

In all cases there has been no outside verification of the COBAs' forest management, which has probably contributed to the lack of frequency of patrols. COBAs cannot be expected to continue to deliver this low-cost conservation without external support. Support is needed both in terms of quick and efficient back-up when COBAs report infractions in their forests and in terms of simple encouragement. However motivated a COBA is to carry out enforcement patrols, if external bodies show no interest, their enthusiasm is likely to wane.

HOW DO THE OPERATING COSTS OF COBAS COMPARE WITH ALTERNATIVE FOREST MANAGEMENT MECHANISMS?

Since it is difficult to define what a COBA should do, and since none of the COBAs we visited appeared to be fully operational, or to be meeting the full costs of their operations, it is difficult to infer the true operating costs of COBAs from the accounts in our sample. However, in order to stimulate discussion of the potential for using COBAs to manage state forests as an alternative to other mechanisms, we present a summary of the annual operating costs of the three COBAs who were able to provide data in table 6, below. We also present an average per hectare cost of patrolling the transfer on a monthly basis, because these costs were not entered into the COBAs records⁴⁰. Finally we provide figures on ANGAP's costs per hectare (on-site only) for comparison.

⁴⁰ The COBAs all had patrolling strategies, and had decided how many people or patrols were needed to cover their area once over, and we used these figures. However, the cost per patrol was not entered into COBA accounts for two reasons. First, in several cases patrols were paid in kind (rice), and in these cases we have converted the cost of the rice into monetary values using normal market prices. Other COBAs has decided on a monetary payment, but had been unable to actually make this payment. Again, we used this figure.

TABLE 6. AVERAGE OPERATING COSTS OF COBAs, PER YEAR AND PER HECTARE.

	Annual Operating Cost per COBA (excluding patrolling costs)		Annual Operating Cost per Hectare (excluding patrolling costs)	
	Ar	US\$	Ar	US\$
Lazasoa	37,013	19	30	0.02
Belanonana	44,133	22	31	0.02
Angalampona	52,388	26	19	0.01
Average	42,008	21	27	0.01
Patrolling costs				0.07
Average total cost per hectare				0.08
ANGAP on-site costs for small protected areas (from Meyers 2005)				7.99

These per hectare costs are low when compared to those of ANGAP. Although these costs may underestimate the full operating costs of effective management of the forest through a COBA, they serve to illustrate the potential savings associated with contracting COBAs to manage state forests. COBAs could greatly increase the scale and effectiveness of their operations, and still be considerably cheaper than ANGAP. Of course, the costs above do not include the opportunity costs of conservation but neither do the quoted estimates for ANGAP's costs, so the comparison is justified. Most importantly, any comparison of costs is incomplete without data on effectiveness. Unfortunately, even data on forest cover change has not been compiled for both ANGAP and COBAs, let alone other measures of effectiveness.

CONCLUSIONS

The revenues a COBA can raise depends on the benefits it creates, which will be discussed in sections 7 and 8. To date, COBAs have raised all of their revenue from membership dues, which we showed in section 4 are declining dramatically. COBAs' external obligations increase their costs, emphasising once again that COBAs are not simply established in the interests of the community, and COBAs face higher costs than indigenous institutions that might also manage the forest.

Nevertheless, COBAs probably offer considerable cost-savings over other conservation mechanisms, because of their ability to mobilise the community in passive monitoring, and their presence on site. Their performance should be monitored and linked to payments for environmental services.

SECTION 6 OPPORTUNITY COSTS AND COMPENSATION

SUMMARY

Opportunity costs are the net costs borne when an individual is prevented from doing something. Opportunity costs of conservation are extremely difficult to estimate, and it is not practical to assess the opportunity costs of each *Transfert de Gestion* contract. However, the position of a COBA's contract on the spectrum of strict protection to production will affect opportunity costs. COBAs with large strict conservation zones and no logging rights will bear higher opportunity costs than those with a large subsistence use zone and the rights to market sustainably harvested timber. COBAs need to compensate for the opportunity costs of conservation (by providing benefits greater than these costs) for two reasons:

1) Communities must perceive net benefits from COBAs if they are to have local support. In principle, communities only need to consider themselves better off with a COBA than without, *given existing laws* about forest use such as *teviaala* and hunting. However, the state is relying on COBAs to enforce the law, therefore the existence of a COBA may reduce the community's opportunities.

2) Conservation must be compatible with development. This second point is important for three reasons. Firstly, the World Bank requires that no "vulnerable people" lose out as a result of its projects⁴¹. Secondly, the government of Madagascar and international donors are committed to both conservation *and* reducing extreme poverty. It makes no sense to undermine one policy goal in the achievement of another. Thirdly, unless the opportunity costs of conservation borne by local people are compensated for, some of the poorest people in the country are subsidising benefits of conservation felt by the rest of the country and the world. Under these circumstances, the net economic benefits of conservation vanish.

Finally, we argue that COBAs may provide an efficient means of compensating communities for opportunity costs. Although this will depend heavily on the state's approach to property rights, COBAs are likely to represent an improvement over many other mechanisms.

WHAT ARE OPPORTUNITY COSTS?

Opportunity costs are the net costs borne when an individual is prevented from doing something. They are the net benefits of the activity not undertaken, minus the net benefits of the activity that was undertaken instead. In the context of conservation, the opportunity costs to a farmer of being prevented from doing *teviaala* on a new patch of forest are the net benefits which he would have received from doing *teviaala*, minus the net benefits he will receive from whatever he did instead. Opportunity costs measure how much poorer he is because of the prohibition of *teviaala*.

⁴¹ It remains to be seen, however, whether this requirement will actually be enforced or not.

ESTIMATING OPPORTUNITY COSTS

Estimating opportunity costs is only necessary because governments place restrictions on how people use the forest, e.g. the prohibition on *teviaala*. This means that communities are not entering into contracts in a position of total freedom, weighing up the benefits of a contract that would include a prohibition against *teviaala*, with rejecting the contract and continuing *teviaala*. This is in contrast to farmers in developed countries who can choose to receive payments under agri-environment schemes to restrict their farming activities in ways beneficial to wildlife. Independent estimates of the opportunity costs are therefore needed but are very difficult to make. Because of the huge uncertainties involved, and also the temptation for the state to impose conservation without compensation, it is by no means clear that prohibiting *teviaala* will be more efficient than assigning real property rights over the forest and allowing a market in conservation. However, the government has chosen the former, and so we discuss it here.

THE DIFFICULTY OF MAKING GOOD PROJECTIONS

The difficulties with opportunity costs are immediately apparent. To calculate opportunity costs, we have to estimate the stream of benefits from two activities, one which happened or will happen, and one which did not happen (or will not). It is therefore impossible to know the opportunity costs of a policy for certain, because we can never know what would have happened if the policy had not been implemented.

Estimating opportunity costs in advance, rather than in retrospect, makes things even more difficult, and this is usually what we have to do. Subtracting one speculative projection of net benefits from another depends critically on the accuracy of our projections. We need to have a good understanding of the individual's behaviour, to determine how he will react in alternative scenarios⁴². In the case of *teviaala*, there are good reasons to suspect that many opportunity cost estimates are not accurate, because the reasons for doing *teviaala* are misunderstood.

When considering the opportunity costs of *teviaala*, many researchers have assumed it to give benefits only in the short term, the land becoming redundant soon afterwards (e.g. Kremen *et al.* 2000, Ferraro 2002). For example, Kremen *et al.* 2000 assumed that land was planted just twice before being abandoned as completely infertile. The number of times that land is farmed before becoming unproductive varies greatly with climate and soil conditions. However, our interviews, and all of our previous experience and fieldwork, have shown the importance of *teviaala* as a long-term investment by households, often in the food security of the next generation. Our interviewees overwhelmingly talked about *teviaala* as being an investment for the next generation, and as a necessary corollary to population growth.

On the eastern side of the corridors, plots, once cleared, are managed in long or short fallow systems, often being converted into rice paddy at a later date if they are suitable (e.g. low-lying, easily irrigated)⁴³. On the western sides of the corridor, most cleared areas are farmed for only a relatively short time before being used for extensive grazing or very long rotation cropping, but low lying areas and easily irrigated hillsides are converted into intensively farmed rice paddy. In the west,

⁴² Note that the individual is the valid point of reference, and not the hectare of forest. Economics is solely concerned with the impact of policy on individuals.

⁴³ Though this conversion appears to be rarer for the eastern side of the Ankeniheny-Zahamena.

Teviala is viewed as an important precursor to this conversion to paddy, but the same sequence occurs in the east, albeit with a longer delay between clearing primary forest and creating paddy fields. This delay probably reflects the better fertility retention and recovery of fallow systems on the eastern side, which prolongs the useful lifetime of a plot.

In all areas, a plot will sometimes be cleared and planted once, before being abandoned for many years until it is handed down to a descendent. Any estimates of the opportunity costs of *tevia* which only take into account the revenues from the first few years, and not its role in providing land for future generations, will therefore considerably underestimate its importance.

CONTINGENT VALUATION AND ITS PROBLEMS

One superficially attractive method, which appears to deal with the problems of making projections, is the contingent valuation method (CVM). CVM uses carefully designed questions to elicit the respondent's willingness to accept compensation for prohibition of *tevia* (see Minten 2003 for an example). Essentially, it aims to find out their own estimate of their opportunity costs. There are a number of difficulties with this procedure. To be valid, the scenario presented to the respondent must be believable and comprehensible to them, and, importantly, they must be able to estimate their own opportunity costs correctly. The difficulty of meeting these criteria in the context of rural Madagascar would be hard enough for any policy. To evaluate the costs of prohibiting *tevia* it can only be harder. First, many people in forest areas can remember at least one previous attempt by outsiders to prevent them from doing *tevia*, and that all previous attempts have more or less failed or petered out. It is therefore hard to ensure that the scenario is believable⁴⁴. Second, it may be just as difficult for a farmer to estimate his long-run opportunity costs as for a researcher. CVMs which ask a farmer to estimate the opportunity cost of a single years break from *tevia* will be much more accurate (and less useful). Finally, empirical tests of CVMs are extremely rare, and those which exist do not lend support to the quantitative accuracy of the method (Kamuanga *et al.* 2001).

WHAT IS THE SOLUTION?

The above discussion merely serves to highlight the difficulties of ensuring fair compensation when production opportunities are prohibited rather than traded in the market. If the state is fixed on prohibition, the best approach may be to undertake comparisons of areas around protected areas with other areas, monitoring household income, emigration, agricultural production etc to ensure that they are not falling behind. It should also monitor agricultural assistance programs, such as those provided by donors, to see whether the increases in agricultural production due to intensification and new techniques are comparable to the production lost through reduced extensification, controlling for labour⁴⁵. This would be an imperfect but pragmatic approach.

⁴⁴ For example, we have spoken with people in the periphery of Ranomafana National Park who told us matter-of-factly that they would recommence farming some abandoned paddy fields within the limits of the park "once the park has gone".

⁴⁵ While studies reporting of yields per hectare abound, e.g. for the *Système Riziculture Intensifié / Amélioré*, disappointingly few report yields per labour input. When considering the welfare of predominantly subsistence farmers, the latter is at least as interesting but appears to be ignored by agronomists (Tsumimoto pers. com.)

HOW DO COBAS AFFECT OPPORTUNITY COSTS?

It is not practical, or even possible, to accurately estimate the opportunity costs of every COBA contract. However, we can consider how they vary with different conservation scenarios.

When considering opportunity costs, we have to consider carefully what form of conservation we are evaluating. We can imagine three stylised conservation scenarios, to be compared against a “null” scenario of no conservation (business-as-usual).

TABLE 7: CONSERVATION SCENARIOS AND OPPORTUNITY COSTS

	Scenario	<i>Teviala</i> , mining, logging	Forest Products	Examples
1	Complete Prohibition	Prohibited	Prohibited	National Parks (in theory), strongly “conservation-oriented <i>Transfert de Gestion</i> contracts”
2	Hard Regulation	Prohibited	Regulated, limited to specified areas	“production-oriented <i>Transfert de Gestion</i> contracts”
3	Soft Regulation	Prohibited	Unregulated, at least outside a strictly protected core zone.	Existing situation in many areas, where <i>teviaia</i> has been prohibited but forest product collection is completely unregulated
4	Null Scenario – No conservation	Continue as they would in the absence of any conservation		Because the state has always attempted to protect the forest, this scenario has not truly existed since before the colonial era

The first case has been evaluated for an eastern rainforest case study by Ferraro 2001, who found that the opportunity costs of *teviaia* approximately equalled those from forest products. A similar result was found by Minten (2003).

By combining Ferraro’s figures with data on the spatial patterns of forest product harvesting, Hockley & Razafindralambo (2006) evaluated the opportunity costs of the third scenario, for various sizes of buffer zone. They showed that the component of opportunity costs due to forest products increased as the size of the buffer zone was reduced, with modest increases at first, and sharp increases as the strictly protected core zone (*noyau dur*) approached the edge of the forest. They also demonstrated that, where forest is still relatively abundant such as the Ranomafana-Andringitra Corridor, the forest product benefits from reduced deforestation were small, and easily outweighed by the costs of decreased buffer zone size (see figure 6, below).

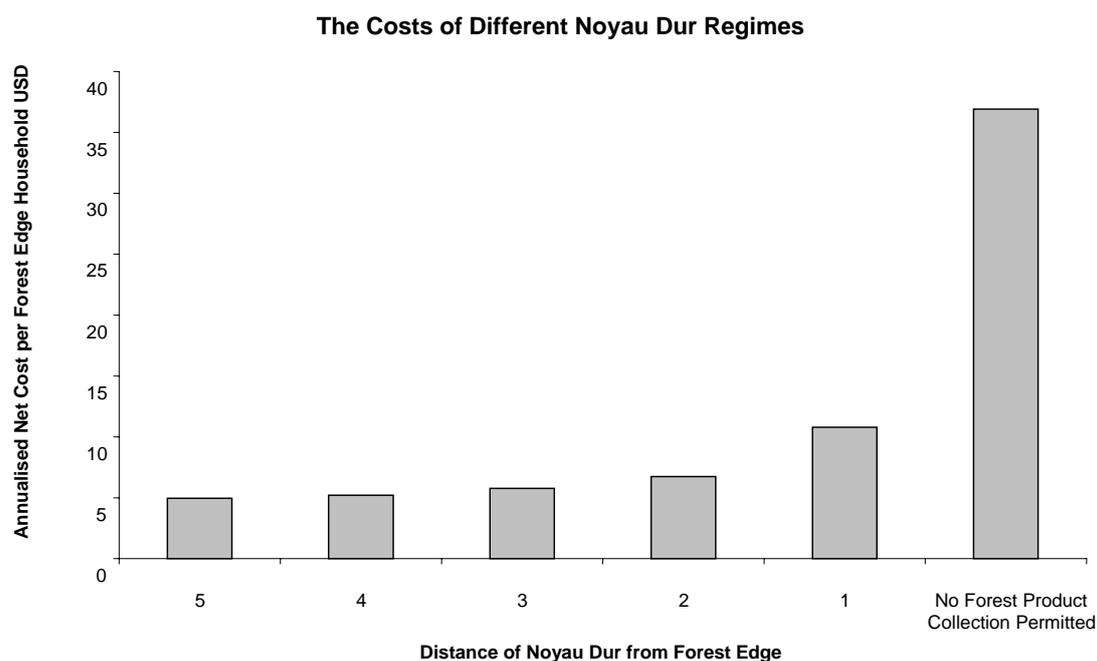


FIGURE 6: OPPORTUNITY COSTS OF FOREST PRODUCT HARVESTING RESTRICTIONS BY CORE AREAS (NOYAU DUR) SIZE. (SOURCE: HOCKLEY & RAZAFINDRALAMBO 2006)⁴⁶

Very roughly then, in the cases studied by Ferraro (2001) and Minten (2003), the removal of harvesting rights, such as in the case of a national park or conservation-oriented COBA, doubles the opportunity costs of forest conservation. In the case of a conservation-oriented COBA, the community also bears some of the management costs, but *may* be able to defray these and the opportunity costs through ecotourism or capturing externalities.

A production-oriented COBA, on the other hand, reduces the opportunity costs due to restricted forest use, but unless the buffer zone is large (larger than any COBA's use-zones at present), they are still present. In addition, the COBA may bear increased management costs. In comparison with Case 3, however, the COBA may be able to increase the productivity of the resource, or add value to the products. For the COBA to make a net contribution to opportunity cost reduction, compared with Case 3, it must provide additional benefits (over and above those provided by existing community institutions) greater than the costs associated with the restricted access and of course its operating costs.

It is extremely difficult to make exact quantitative predictions of whether this will be the case, but we should note that even many production-oriented COBAs, have small use zones. They are therefore likely to have relatively high forest product-related opportunity costs. Given the weak prospects for adding value or increasing productivity noted below, it is unlikely that the COBA will offer an advantage over case 3 unless it can capture externalities (essentially, payments for biodiversity

⁴⁶ It should be noted that the detailed spatial data used by Hockley & Razafindralambo was collected from just a single village, and may not be representative. However, based on our wider experience it seems to be a reasonable approximation of the situation in other villages, and is in any case the only suitable data.

conservation and environmental services), bring in significant ecotourism, or unless market conditions can be improved significantly (see recommendations).

WHY COBAS MUST COMPENSATE FOR OPPORTUNITY COSTS

COBAs must generate benefits for the community, and their members, over and above the opportunity costs of forest protection, for two reasons, described below.

COMMUNITIES MUST PERCEIVE NET BENEFITS FROM COBAS

In principle, communities only need to consider themselves better off with a COBA than without, *given existing laws against teviata etc.* Since *teviata* is technically illegal whether or not a community has a COBA, communities do not in theory lose anything by having a COBA which prevents them from practising *teviata*. In practice, *teviata* has been more or less illegal since colonial times, but enforcement has been sporadic and weak (Kull 2004). The state is relying on COBAs to enforce the law, and does not have the resources to do so itself: therefore, the existence of a functioning COBA may well reduce the community's ability to do *teviata*. Also, for many communities, the advent of *Transfert de Gestion* has coincided with the recent crackdown on *teviata*, logging and mining, and so the two are often strongly associated in their minds.

Therefore in practice, the distinction is blurred between:

1. COBAs making people better off than they would be without a COBA, given that *teviata* is illegal
2. COBAs compensating people for the full opportunity costs of forest protection, including those which they might bear even without a COBA.

In addition, COBAs may increase the opportunity costs borne by communities, if they increase the constraints on their use of the forest and this has occurred in several cases (see section 7).

CONSERVATION MUST BE COMPATIBLE WITH DEVELOPMENT

Just as important, conservation must not negatively affect the rural poor, for the three reasons outlined below, and COBAs represent an important mechanism for ensuring that it doesn't. First, the World Bank, which has contributed \$40m to Madagascar's third environmental plan, PEIII (which includes the NAPs), requires that no "vulnerable people" lose out as a result of its projects⁴⁷. Therefore, PEIII, is obliged to compensate communities for the costs they bear as a result of the NAPs. Functioning COBAs which benefit communities may be one means of doing this.

Second, as we showed in Section 1, the same external agencies who promote conservation (the government of Madagascar, international donors) are also committed to reducing extreme poverty under the Millennium Development Goals and Madagascar's own poverty reduction strategy.

Third, without equitable distribution of the benefits, the poorest people of Madagascar, the ones least able to bear costs, will be subsidising benefits of

⁴⁷ <http://preview.tinyurl.com/24mhlx>.

conservation felt by the rest of the country and the rest of the world (Hockley and Razafindralambo 2006). In these circumstances, the economic justification for forest conservation, which has been used to justify donor funding (e.g. Carret & Loyer 2003), can be shown to evaporate (Hockley & Razafindralambo 2006).

WILL COBAS ASSURE COMPENSATION?

If COBAs are truly representative of their community, and operate democratically, the strength of the COBA will reflect its success in ensuring that the community as a whole benefits from conservation. By binding together those who stand to gain most from conservation with those who stand to lose most, a representative and democratic COBA provides both the means and the incentives for winners to transfer benefits to losers within the community, and to ensure that benefits brought to the community by the COBA are distributed fairly. As such, conservation agreements *negotiated* with a COBA may be more equitable, and more stable, than those negotiated simply with local power structures. Note that this argument makes strong assumptions about the democratic nature of COBAs, and external stakeholders with an interest in ensuring equitable outcomes would be well advised to provide support for the proper functioning of democracy in COBAs (see recommendation 3.1-3.2).

CONCLUSIONS

Conservation has opportunity costs for local people, and these should be minimised to ensure an equitable and efficient outcome. The current approach to prohibiting forest conversion and exploitation makes it hard to ensure this is achieved, and we would advise against using estimates of opportunity costs as much more than qualitative indications. However, careful implementation and design of protected areas, and the involvement of fully functioning COBAs in the network of protected areas has the potential to greatly improve the situation.

SECTION 7 GENERATING BENEFITS I: MANAGING FOREST RESOURCES

SUMMARY

The main rationale behind *Transfert de Gestion* has been that the community may benefit from improved management of forest resources. In this section we discuss the benefits which are likely to be generated in this way. In section 8, below, we discuss other ways in which the COBA can generate benefits, including through commercialisation and payments for environmental services.

Whether *Transfert de Gestion* is likely to produce benefits from improved forest management will depend on four things. 1) whether the community retains the rights to the resource. 2) Whether exploitation by outsiders is currently a problem. 3) Whether the resource is heavily-harvested and 4) Whether the exploitation has negative externalities (e.g. negative impacts on water supply) that are felt by the community.

To provide benefits from management, COBAs must enable communities to reduce exploitation to the level that is optimal for the community. However, under *Transfert de Gestion*, the rights to two major forest resources; land for agriculture (accessed through *teviata*) and minerals (accessed through mining), are strictly prohibited. Communities can only benefit from excluding outsiders if there are negative externalities from these activities. We suggest that this may be more clearly the case for mining (where the benefits often accrue to immigrants and there are local costs through pollution and social disruption) than for *teviata* (where individuals from the community benefit and existing institutions may already control it to some extent, limiting externalities within the community).

Improved management of forest products may give benefits to communities. However, we should be realistic about how large these benefits are likely to be. Many COBAs' hopes lie with being allowed to carry out logging in their transfers, but many do not have production zones and existing logging rights may be revoked. Other forest products can be collected from sustainable use zones but are mostly of low value. In addition, these sustainable use zones have often been poorly planned, of insufficient size or in the wrong place to provide significant benefits through sustainable harvesting of forest products. Large areas of every transfer are designated as conservation zones which COBAs are responsible for policing but which they cannot use. In conclusion, the benefits to communities through improved management of forest exploitation have probably been overstated.

WHEN WILL THE COMMUNITY BENEFIT?

As described in Section 3, the central rationale behind *Transfert de Gestion* as currently conceived is that by solving the 'tragedy of the commons', communities can benefit from improved management of resources. Where resources are over-exploited because of an open access situation, COBAs *may* improve the productivity of those resources by excluding outsiders and regulating access to the resource by the community. There are, however, a number of constraints on the benefits to communities of solving a tragedy of the commons and improving management through establishing a COBA.

To solve a tragedy of the commons, the community must reduce exploitation that has been occurring at a super-optimal level to the level that is optimal for the community. The principal advantage of *Transfert de Gestion* in this regard is the power it gives to communities to exclude outsiders. COBAs can also regulate forest use by community members (indeed they are required to in some cases), but if the regulation is genuinely in the interests of the community, there is no reason to assume that they will be more successful at doing this than indigenous institutions⁴⁸. We must therefore draw a distinction between the regulation of outsiders, and that of community members. We must also recognise that *optimal* use is not synonymous with *sustainable* use: exploitation that is unsustainable may still be optimal, from the community's point of view. It is this error, more than any other, which has led conservationists to assume synergies between conservation and rural development where they do not necessarily exist⁴⁹.

Forest resources or extractive activities can be grouped into four categories:

- 1) Land for agriculture (accessed through *teviaia*)
- 2) Minerals (accessed through mining)
- 3) Commercially traded forest products including timber and live animals
- 4) Forest products principally harvested for subsistence use by the community⁵⁰.

Without efforts by either the state or communities, it is *possible* that some or all of these would suffer to some degree from a tragedy of the commons. If this were the case, then we might expect that the rates of exploitation would be slowed, and net benefits to the community increased, were private or community rights to them secured. The first three resources tend to be of greatest economic value and also of greatest concern to conservationists, but harvesting for community use can be important, and can also be unsustainable and ecologically damaging.

However, under *Transfert de Gestion*, the rights to the first two resources are withheld completely by the government, i.e. *teviaia* and mining are strictly prohibited. The constraints on a community's use of the other two categories vary between COBAs. Commercially harvested products may normally only be harvested from production zones while products used within the community may be harvested from subsistence use zones. Some COBAs have production zones, but many do not, while some COBAs do not even have subsistence use zones (see recommendations 2.5 & 2.8).

⁴⁸ After all, if the community wasn't able to regulate the activities of its own members for their own benefit before establishing a COBA, why would we expect it to do so afterwards? Where COBAs are successful in assisting the community to self-regulate, it is likely to be because the community values the COBA for other benefits it provides, and not for the benefits of self-regulation.

⁴⁹ Unsustainable also does not necessarily equate to complete depletion of a resource. Resources may be harvested unsustainably until such a time when the reduced abundance makes exploitation unprofitable, and users switch to other alternatives. This is probably the case for many forest products.

⁵⁰ This category therefore includes some products which are traded within the community, as when someone buys house building materials or a *Pandanus* mat from another and some which may be harvested for subsistence use by people from outside the community (and in some cases from outside of the transferred resource?).

WHEN MIGHT THE COMMUNITY BENEFIT?

In table 7 below we summarise the conditions under which there is potential that a COBA might benefit a community through improved management of forest resources. Note that the conditions are necessary for there to be even a *potential* benefit from COBA action. Whether there actually *is* a net benefit to the community is discussed below.

1. Community retains the right to use the resource or practice the activity

This is critical. If the COBA's contract does not allow the community to exploit the resource themselves, they will be unlikely to benefit from preventing others from doing so. In circumstances when an activity is completely banned, the COBA will only be able to enforce the ban if the community values the COBA's existence for other reasons, and chooses to comply rather than have the COBA's contract terminated. The exception is where the activity has negative effects for the community itself (condition 4 below).

2. Resource is used by outsiders

As we noted above, the key benefit of COBAs is the power that they have to exclude outsiders. If the product is used by outsiders, the COBA may benefit the community by regulating, taxing or excluding them altogether. However, it will not benefit from reducing outsiders' use of a resource if that resource is under-used by the community (conditions 1 & 3) unless the harvest has some other negative impact on the community's interest (condition 4).

3. Species or product is not under-harvested

Many forest products are under-utilised, i.e. harvesting does not significantly affect their availability in the forest. If this is the case, reducing the amount harvested by outsiders or community members, or actively managing the resource will not benefit the community.

4. Use of the resource has negative effects for the community

If exploitation of the resource has negative effects for the community itself there may be a benefit to regulating the activity or even banning it altogether. Examples may be if mining causes pollution, or if forest exploitation affects revenues from ecotourism.

TABLE 8: CAN A COBA BENEFIT THE COMMUNITY BY MANAGING FOREST USE?

Does community retain the right to harvest?	Is product harvested by outsiders?	Is product heavily-harvested?	Does exploitation have negative externalities for community?	Case	Possible Benefit of COBA Action?
Yes	Yes	Yes, outsiders reduce community harvests	n/a	1	Possibly
		No, no effect of outsiders on community harvests		2	Possibly
	No	Yes	n/a	3	Possibly
		No	Yes	4	Possibly
			No	5	No
	No	n/a	n/a	Yes	6
No				7	No

Notes on the Cases:

1. Improving management and reducing off-take by outsiders or the community may increase availability in the forest. Taxing outsiders may bring further benefits.
2. There is no benefit to excluding outsiders or regulating their harvest, since the product is under-utilised. The only benefits come if outsiders can be taxed, or if the harvest has a negative impact e.g. on ecotourism
3. Improving management may increase availability in the forest.
4. There will only be a benefit to the community if the harvest has a negative impact e.g. on ecotourism
5. No benefit to regulation, since it will not increase productivity or protect community interests
6. There will only be a benefit to the community if the harvest has a negative impact e.g. on ecotourism
7. No benefit to regulation, since it will not increase productivity or protect community interests

POSSIBLE BENEFITS TO COBAS FROM MANAGING TEVIALA

Tevala is completely prohibited by *Transfert de Gestion* contracts, for both outsiders and community members, and the COBA is required to enforce this. As we have noted above, there are likely to be considerable opportunity costs associated with this prohibition in many communities. In this case, therefore, COBAs do not solve a tragedy of the commons, because they do not help the communities to practice 'optimal *tevala*' unless the optimal rate of *tevala* is actually zero. This is in contrast with indigenous institutions, which *may* achieve an optimal rate, or at least aim to do so. For example in Anjahamana, where small forests close to the village and outside of the transfer were protected because of their importance for forest product collection. It is possible that if the optimal rate of *tevala* really is zero, the COBA, backed by the law, may help the community to achieve its goal. It seems unlikely that this will be the case, however, since the optimal *tevala* rate is likely to be complex and not zero. For example, in Angalampona, we spoke with farmers who had

deliberately refrained from clearing some forest patches (despite having purchased permits to do so from the SEF) because they were directly next to the water source which fed their rice fields. The same family, however, had been clearing fields in the interior of the corridor (again with permits from the SEF), in order to expand their agricultural holdings without affecting important water sources. Another consideration is that unlike mining, *teviaala* tends to be practiced by members of the community rather than powerful outsiders. This means that the COBA cannot be expected to significantly increase the ability of the community to regulate *teviaala* to achieve an optimum result. It is likely therefore that for most communities the COBA does not offer significant benefits over indigenous institutions in the management of *teviaala*. Evidence for this comes from the fact that while COBAs do appear to have reduced forest conversion, this has proved problematic for the COBA, with some having difficulty applying the *dina* against *teviaala*. This difficulty does not simply stem from problems of nepotism or power relations (as anticipated by WWF 2005), but rather from the fact that communities simply do not see an *uncompensated* ban on *teviaala* to be just⁵¹.

POSSIBLE BENEFITS TO COBAS FROM MANAGING MINING

Since virtually all the products of mining are traded outside of the community, minerals could have been included in the same category as other forest products. However, they differ in two important respects. Firstly, mining is unconditionally prohibited by *Transfert de Gestion*, whereas commercial harvesting of other forest products is not. Secondly, minerals, unlike living resources, are not of conservation concern (though the effects of mining on living resources clearly are).

Mining, like timber harvesting *can* have devastating ecological effects. But given that in both cases the ecological impact can be minimised, and furthermore, that many minerals are extremely valuable, it seems to us to be curious that the government has chosen to prohibit mining completely under *Transfert de Gestion*, while allowing for a trade-off to be made between production and conservation with respect to timber harvesting⁵². We also note that while COBAs are prohibited from mining, existing mining permits within the NAPs have not been revoked and are merely in abeyance (Government of Madagascar 2006).

However, given the current government position, are there likely to be net benefits to the community of enforcing a ban on mining? The community will of course lose any income which individuals might receive from working on the mine, but mining tends to attract immigrants workers rather than locals and most of the profits go to capital rather than to labour. The community will benefit if the mining has adverse consequences either directly (e.g. through pollution) or indirectly (e.g. through attracting immigrants who then compete for land or destabilise the community). From

⁵¹ One COBA president (from outside of our sample) remarked to one of us that while a recent case of *teviaala* by a young member of the community may not be *right* it was *just*: “*tsy marina fa rariny*”.

⁵² What we are arguing here is that there will be a level of mining which causes equivalent damage to that caused by a given level of timber harvesting. The question then is: which produces greatest benefit for a given level of damage? It may be that timber always outperforms mining in this regard, but it may not be: this will depend heavily on the relative prices of timber and minerals. To take an extreme example, gold panning: this produces a high-value product and requires almost no ecological disturbance. We are not specialists in mining, we simply wish to note that it artificially limits the options to treat mining as fundamentally different from timber harvesting.

our experience, communities tend not to view mining favourably and on balance, if COBAs can prevent mining by outsiders, this is likely to benefit the community.

Evidence for this view comes from the fact that several of the COBAs we visited (including Angalampona, Anjahamana and the Didy COBAs) had taken action to prevent mining in their area. This involved confronting the miners, and reporting them to the SEF. Indeed, as predicted, this seems to have caused fewer problems for the community than the prohibition of *tevia*la. COBAs are therefore very successful in acting as the eyes and ears of the SEF in this respect, but their success in actually preventing the mining depends on the backup they received⁵³. Often the miners had tried to confuse the COBA by producing 'authorisations', and COBAs might be strengthened by clarifying what mining is and is not allowed, and where (see recommendation 4.2).

In the case of Anjahamana, the COBA were powerless to act, because the graphite mine was just outside of the forest, even though its insatiable need for fuel wood was leading to degradation of the COBA's forest. In Angalampona, the COBA was powerless to prevent mining in nearby forest that was not included in the transfer. This illustrates again the problem of the tightly defined remit and powers of the COBAs. Note, also, that very often the mining is carried out by relatively powerful individuals and that COBAs need support from the SEF or the Gendarmes in preventing mining.

POSSIBLE BENEFITS TO COBAS FROM MANAGING FOREST PRODUCTS

Unlike *tevia*la, exploitation of forest products can in principle be carried out in a 'sustainable' manner, and without affecting forest cover. Thus, it is permitted to varying degrees under *Transfert de Gestion*. If the conditions noted above are favourable, in particular if the community retains some rights to use the resource (cases 1-4, in Table 7), the COBA *may* be able to benefit the community by regulating exploitation, which in practice will always mean reducing it in the short-term. However, the benefits from doing this will depend on the following considerations (see also Hockley *et al.* 2005):

- 1) The value of the product: many forest products are harvested for purely subsistence use or very local trade, but certain products, including timber, spade handles, and *Prunus africana* bark, may be commercialised. Where specific products have a ready market and are reasonably high in value, there may be benefits to communities from sustainable exploitation, however, most forest products have a very low profitability.
- 2) The role outsiders play in the exploitation: There is only a benefit of excluding outsiders if the resource was previously exploited by them. To the community, it is preferable to restrict or tax outsiders' harvests rather than their own, so the benefits of restricting harvests will be lower if the product is hardly used by outsiders. Yet, most forest products are harvested only by members of the local community.

⁵³ Often, in providing this backup, the SEF is reliant on donors including USAID through ERI, to pay for the intervention. Without such ad hoc donor support, the state is powerless to enforce its laws. This situation cannot continue indefinitely.

- 3) The degree of overexploitation: benefits of regulating community members' use of resources depends on those resources having been unsustainably harvested prior to the introduction of regulations. Yet many forest products used by communities are often under-utilised in the forest as a whole (even if populations close to the village may be over-harvested) and monitoring and management will therefore bring few benefits. Even where products have been over-harvested and regulation will bring long-term gains after short-term losses, many forest products are slow-growing resulting in a very long delay before these, probably small, benefits are seen⁵⁴.
- 4) The constraints placed on COBAs in terms of sustainable use: In their contract, COBAs agree, "not to exceed the reproductive capacity of the forest". In the case of timber, there are well-established methods for calculating sustainable harvests from tropical forests⁵⁵. However protocols for the assessment of sustainability of harvesting other non-timber forest products (NTFPs) lag far behind those for timber (see e.g. Wong *et al.* 2001, Tikin 2004), and there is more need to fine-tune them case-by-case, since NTFPs cover a huge range of animal, plant and fungal species, all with very different life-histories and responses to harvesting. Increased monitoring and management effort by the COBAs could increase the certainty of assessments, but at additional cost and therefore reduced profitability (see e.g. Hockley *et al.* 2005). *Transfert de Gestion* legislation does not make it clear what exactly is meant by sustainable exploitation, what level of certainty is required from COBAs, and therefore what the costs for COBAs might be of complying with these regulations. Despite a lack of clarity over what is meant by sustainability, and what COBAs need to do to demonstrate it, the management plans often specify quite complex rules covering the zones and seasons in which products can be harvested, the quotas for harvests and the various charges which the COBA will levy upon each product. These rules pose significant challenges to COBAs and often have little ecological basis or merit, and may be disproportionate to the importance of the harvest. For example, the science of zonation for improved sustainability is in its infancy, and it is highly doubtful whether the zones established in many transfers serve any useful purpose.
- 5) The difficulty, and hence costs, of monitoring and managing both the resource and the exploitation. If regulating exploitation requires intensive patrolling, the net benefits may be low. Many forest products are small, easily concealed, and either leave no trace of their harvests, or are harvested only irregularly: finding signs of harvesting does not aid in catching the transgressors. Patrolling against forest

⁵⁴ This is in contrast to many fish species, which may respond quickly to improved management (Andrianandrasana *et al.* 2005). This, combined with the fact that it is frequently easier to monitor fishing activities than it is to monitor forest exploitation, may suggest that marine and freshwater CBNRM can be more successful than forest-based CBNRM.

⁵⁵ It should be noted that there are a number of concerns about the true sustainability of "sustainable logging". These relate to the effects on the timber species concerned, and on the forest as a whole. For the former, the extent to which it can actually be sustained indefinitely is poorly known, since most tropical woods require long (40+ years) rotation and few areas have been managed for more than one rotation. For the latter, ecologists argue that any logging will have a negative impact on the biodiversity value of the forest. Assuming a definition of biodiversity which privileges the natural over the human-altered, this is a truism, and the issue becomes a question of trade-offs: do the benefits of the timber harvest outweigh the costs of disturbance.

product harvesting is extremely difficult, which is why it continues almost unaffected by ANGAP's patrols in National Parks (pers. obs.)

- 6) Additionality of benefits. In some cases, pre-existing community institutions may be playing a similar role to that which COBAs are attempting to fill. Such institutions may be ignored or even disrupted when COBAs are established (see e.g. Rabesahala Horning 2003). The optimal situation for communities might be one where strong traditional institutions regulate resource use, while minimising opportunity costs by allowing limited *teviaala*. The undisputable fact of continued forest conversion in Madagascar, particular where forest is still plentiful does not indicate the absence of such indigenous community forest management institutions as we have shown above. In these circumstances, the establishment of a COBA may increase opportunity and transaction costs, while not adding commensurable benefits from further improvements in forest management.

WHAT PRODUCTION RIGHTS WERE TRANSFERRED IN OUR COBA SAMPLE?

COBAs can only carry out commercial harvesting of forest products, including timber, in production zones. Of the six working COBAs we visited, three had no production zones. However, two of those with production zones (both in Didy) had been either forced or persuaded to adopt a strongly conservationist policy by the original *organisme d'appui* (Conservation International). Only one therefore had a real production zone during the first contract period (Antsatrana) while Anjahamana, the new COBA, is planned to have a production zone. Antsatrana does not appear to have carried out any timber extraction during its first term. There are probably three reasons for this. First, COBAs require external technical assistance to meet, and prove they are meeting, the requirements laid down for selective logging. Second, Antsatrana lies a long way from any substantial market for timber, which is of course one of the reasons why it still has good stocks of timber. In areas with better access, forests have often already been high-graded for the best timber. Third, because there seems to have been a tendency to discourage COBAs from harvesting timber and indeed all timber harvesting in natural forest in Madagascar has been the subject of a moratorium. All of the COBAs we visited fall within the NAPs, and it is possible that those with timber extraction rights will have those rights removed when the areas are formally declared. In the both corridors, issuing cutting permits is prohibited in the *noyau dur* of the protected area for the duration of the *protection temporaire* by the *Arrêtée Interministériel*. Although this leaves some COBAs unaffected, some do fall within the core zone, and there is no guarantee that *permis de coup* will always be permitted outside the core zone⁵⁶. The core zone seems to have defined somewhat haphazardly, since there was little ecological data with which to identify areas of particular biological importance. Even assuming a strong ecological rationale, it has certainly taken little account of the location of COBAs, since the planning workshop for the Fandriana-Vondrozo corridor did not have shapefiles of any COBAs.

The COBAs of Didy, therefore, who have spent the last three years protecting their forest in order to win the right to carry out sustainable selective logging might yet be disappointed, as will the COBA of Anjahamana, who could lose the right to extract timber from their forest just at the moment they sign their contract, after more than two years of patient efforts.

⁵⁶ All seven of the COBAs we visited lie outside the core zone. At present it looks as if timber harvesting will be allowed outside the core zone, but this remains highly uncertain.

CONSTRAINTS PREVENT COBAS BENEFITING FROM SUSTAINABLE EXPLOITATION

Under the current institutional climate, COBAs are unlikely to profit from sustainable commercial harvesting of any products, for the following reasons:

- 1) Because of the strict requirement placed on COBAs to demonstrate the sustainability of any commercial exploitation, they will need significant technical assistance from external agencies.
- 2) Because of past and current unsustainable exploitation, usually carried out by outsiders, communities are unlikely to be able to profit from *any* commercial harvesting, but particularly sustainable harvesting for three reasons:
 - a) the easiest profits have already been made: any remaining timber is usually either of low quality or inaccessible
 - b) general market prices are depressed by ongoing illegal exploitation
 - c) communities do not receive any price premium for sustainably produced timber because there is no system of certifying or exporting COBA produced timber, and in any case there is only a limited domestic market for “green” products (see recommendation 3.4, 4.1, 7.6).
- 3) Finally, these examples are an important reminder that under the current legal framework, the rights transferred to COBAs are not only very restricted, but also extremely insecure. What the government gives, it can just as easily revoke or suspend with no notice, right to appeal or redress. The implications of this go way beyond the financial losses to COBAs. The negative effect that the removal of harvesting rights would have on the trust between the COBAs and all external agencies, and on the enthusiasm they feel for their work may be even more serious. That security of tenure is the key to sustainable, “rational” management of natural resources is beyond dispute. If their tenure is not secure, communities will have little incentive to moderate present consumption for future gain: high discount rates do not favour sustainability.

The discussion above also illustrates the important point that in the case of forest product harvesting, which tend not to have much adverse effect on the wider interests of the community, the community will only benefit from managing the resource if their rights to use it are not overly restricted. The requirement to meet external standards of sustainable exploitation will be an onerous restriction if external stakeholders do not provide technical assistance and, more importantly, do not restrict illegal or unsustainable exploitation or ensure a price premium for sustainably harvested products. If rights are withheld or revoked, this will give no incentive for communities to manage forest products sustainably, and if previously granted rights are revoked, this will also seriously undermine a community’s faith in the system. If illegal logging is not prevented in non-COBA forests (which make up the vast majority of Madagascar’s forests) there seems little point in preventing COBAs from carrying out selective logging. Even within the COBAs’ forests themselves, preventing selective logging may not significantly decrease the number of large trees felled, since many trees are often felled in search of supposedly more sustainable non-timber forest products or subsistence products. We know from our experience of working in National Parks that harvesting honey, palms, *laro*⁵⁷, can all result in

⁵⁷ *Laro* is a general term for tree bark used to flavour *toaka* (cane rum).

mature trees being felled and that ANGAP is relatively powerless to prevent this. Unless communities value these trees either for their timber, or because the forest's biodiversity is valorised directly through ecotourism or biodiversity-related support, the COBA is unlikely to be effective in stopping them from being felled either by outsiders for illegal timber, or by the local community.

External agencies appear to be frustrating efforts by COBAs to exploit their forests sustainably because they have had little success in cracking down on the real problem, which is totally unsustainable and illegal logging by relatively large-scale operations from outside the community. This is understandable perhaps, but unlikely to result in any conservation benefit.

WHAT RIGHTS WERE TRANSFERRED IN OUR COBA SAMPLE? SUBSISTENCE USE

All but one COBA in our sample had a subsistence use (*droits d'usage*) zone, however this understates the constraints on COBAs. In two cases, the subsistence use zones, while roughly equal in size to the conservation zone, contained substantial areas that were not forested. In one case (Tsaratanana) the amount of forest in the subsistence use zone was negligible.

One COBA (Angalampona) had subsistence use zones which had been relatively well planned to take account of the distribution of some resources, but were still small, making up less than 10% of the transfer. Not surprisingly, we found many places considered important for harvesting forest products lay outside of the subsistence use zones, considerable evidence of harvesting in the conservation zone, and very poor knowledge amongst COBA members of where the various zones were. Finally, we were unable to obtain any maps of the remaining two COBAs' (Didy) transfers, in order to determine the extent and appropriateness of their zones.⁵⁸ In general therefore, even for COBAs with subsistence use zones, conservation makes up, by area, a substantial part of the COBA's transfer – averaging more than 50%.

It is unclear what the rationale behind such an over-representation of conservation might be. In some cases like Tsaratanana, it may result partly from an over-reliance on Landsat images of forest cover, rather than ground surveys. Landsat are of questionable use in determining the edges of forests in zones where fallow vegetation is common, and are also of an inappropriate scale. In other places, the spatial location of subsistence use zones has been established after inadequate representation at public meetings. It is extremely hard for the mediators to ensure that everyone participates, but the result is that some hamlets may find themselves kilometres away from the subsistence use zone. On a more general level, the assumption appears to be that unless there is a particular reason to designate an area as subsistence use, the default is to designate it as conservation.

This emphasis on restricting rights even within the transfer has resulted in some oddities. In some cases, communities elected to “withhold” from the transfer some forests which they used heavily for forest product collection, preferring instead to continue to manage these forests (often located close to villages) using existing informal community institutions. They did this having correctly understood that their

⁵⁸ In Anjahamana, the proposed transfer included both production and *droits d'usage* zones, in roughly equal proportion to the conservation zone (although the production zone may now be lost since the transfer lies within the NAP).

access to forests within the transfer would be curtailed. Thus, they now have the weakest legal rights over the forests they use most, and manage most closely. This illustrates the failure of *Transfert de Gestion* to secure rights, and is another consequence of the relentless desire to extract ever more conservation from COBAs, which reduces the value of the forest managed by the COBA.

CONCLUSIONS

For at least two major forest resources (agricultural land, minerals and often timber) *Transfert de Gestion* departs from the traditional reason behind granting secure community rights: namely that it will lead to a more sustainable use of resources. Tragedies of the commons result from *too much* exploitation: the resource base (the “capital”) is depleted so far that it reduces the productivity (the “interest”). Prohibiting resource use altogether does not solve a tragedy of the commons, since the harvested productivity is then reduced to zero, and there is *not enough* exploitation.

The principle benefits of COBAs for regulating exploitation of forest products are their legal status and ability to exclude outsiders. However the benefits of regulation and sustainable exploitation are likely to be less than imagined by policy makers, for the following reasons.

1. Many resources are not currently over-harvested, or harvested at all by outsiders. Timber is often over-harvested by outsiders, but since many communities are prevented by their contracts from harvesting it themselves, there will be little benefit from excluding outsiders.
2. The difficulties of sustainable management have rarely been considered, and many management rules appear to have little scientific basis. In general, *Transfert de Gestion* makes it very hard for communities to exploit resources without external significant assistance.
3. It is often assumed that no indigenous resource management or control of exploitation existed prior to COBAs being set up, and therefore that COBAs must represent an improvement on the status quo. In fact even a successful COBA may not bring much additional regulation which is of benefit to the community, especially if it is not backed up by the state in its regulation of outsiders.
4. There is no mechanism to ensure that COBAs get a fair price for their sustainably produced products, and unfair competition from unsustainable sources is not prevented.

Overall, *Transfert de Gestion* has taken an overly cautious approach to transferring rights to communities, and a large part of many transfers is reserved for conservation. The rights transferred do not appear to be secure, and the government, under pressure from conservationists, seems all too ready to consider revoking the rights of COBAs to carry out sustainable exploitation, with serious consequences for relations between communities and the state.

SECTION 8 GENERATING BENEFITS II: OTHER BENEFITS

SUMMARY

As shown in the last section, the benefits to communities of improved forest management through COBAs have probably been over-stated. We therefore have to look at the three other ways in which COBAs can generate benefits, however, these are not a panacea and each presents its own challenges or limitations.

1. Adding value to existing products and generating new ones

As well as increasing the productivity of forest resources, COBAs could access new markets or carry out greater processing within the community. However, opportunities may be limited and depend on donor support to overcome transport and communications barriers. We suggest that cultural and eco-tourism may be the most likely to generate significant benefits.

2. Generating community pride

Communities may feel pride in the COBA and be pleased to have formal rights and responsibility over their land. However, this benefit may act more to reinforce COBAs that are operating well, and may not be enough on its own to justify the COBA's existence, and depends on a genuine transfer of rights to communities by the state.

3. Positive externalities

COBAs could generate benefits for their community by capturing a greater part of the value of ecosystem services that are produced by the forest and enjoyed by outsiders, including: watershed management, biodiversity conservation and carbon sequestration. The value of these externalities may be many times greater than the value that could be derived from forest products. However, the current legal and institutional framework does not help COBAs to capture such externalities, as they cannot negotiate with the outsiders who benefit from this conservation.

Given their magnitude, capturing part of the value of positive externalities probably represents the single most feasible option for securing the viability of COBAs, but will require the support of external agencies. The lack of attention to externalities in the existing system is symptomatic of the pervasive view that *Transfert de Gestion* is simply of benefit to communities, and we find it surprising.

ADDING VALUE TO EXISTING PRODUCTS AND DEVELOPING NEW ONES

As well as increasing the productivity of forest resources (see section 7), COBAs could add value to products already extracted from their forests by organising themselves as a cooperative. In doing so, they could increase their market power, and may be able to better negotiate with buyers, or carry out greater processing within the community. The COBA may also be able to identify products which are not yet commercialised in their community, but which have a ready market.

It is important to be realistic about the potential for generating benefits in this way. First, all of the same provisos noted above in relation to commercial production of existing forest products still apply: most communities have been severely limited in

their ability to profitably commercialise any products by their COBA contracts. However, it is worth noting some other difficulties, since the development of new products and the addition of value are often expected to bring great benefits to communities. Note that *capturing* the added value attributable to products produced in a sustainable way, by charging higher prices for them, is dealt with below under “internalising externalities.

With respect to adding value, through cooperative action, cutting out middlemen is not without its difficulties. It is easy to identify when middlemen are making apparently excessive profits. However, middlemen face considerable risk and costs in linking sources to often volatile markets, in areas with atrocious transport infrastructure. High mark-ups by middlemen may therefore be justified. Teaching the community the skills required to carry out more processing within the community may be successful, but it is difficult to see how this will benefit more than a few individuals, who will then be in a position to act as middlemen: the benefits to the community as a whole will be minimal. Finally, it should be remembered that only rarely will COBAs be in the position of being monopolistic suppliers of a product. Their ability to extract extra revenues from buyers through simply controlling supply is therefore limited, and is likely to remain so for the foreseeable future.

It is not easy to identify previously uncommercialised products. Markets in Madagascar are inefficient, in the sense that they may fail to connect buyers and sellers due to poor communication and transport infrastructure. These problems can only be addressed either through wider development programs (e.g. road building, telecommunications networks) or by effectively subsidising COBAs by using project infrastructure to assist with information transfer and transport of goods. However, if commercialisation relies on such support, it may not continue once project support ceases, since market conditions are liable to change.

We do not wish to be naysayers, but in our opinion, projects are consistently over-optimistic about the possibilities for commercialising new products, or tapping new markets for existing products, in a way that will outlast the project and provide long-term revenue for the COBA and benefits for the community. Too many people seem to pin their hopes on finding that magical new product. We aren't saying that it cannot be done, but we suggest that we should always ask: why hasn't someone already commercialised this product? Madagascar is well supplied with minor entrepreneurs: transporters, shopkeepers, who move regularly between urban markets and rural villages. Anyone who has ever spent time with these people will know that they are constantly asking the price or availability of products, constantly looking for that extra source of income. Why haven't these people capitalised on the opportunity already?

The cases where projects are likely to be able to help COBAs are where the markets in question are either novel, international, require a good understanding of western requirements and tastes or a degree of credibility. We discuss one such new product, ecotourism, next, and others (environmental services and green products) below.

BACK COUNTRY ECOTOURISM

One new product which COBAs may be well placed to develop with the assistance of projects is off-the-beaten-track eco-tourism or cultural tourism, something there is a real lack of in Madagascar. We suggest that small but growing numbers of tourists would appreciate the opportunity to visit community-managed forests and stay in local village accommodation. One such scheme is being developed in Ambohimahasina commune, on the western side of the Fianarantsoa corridor.

COBAs can charge an entry fee to the forest and other benefits would accrue to the community (opportunities to work as guides, sell produce, provide basic accommodation or meals). A national or regional network of COBAs could play a useful role in this, perhaps enabling reservations to be made through a partner organisation with an office in town and providing a minimal level of accreditation and publicity. Even very small numbers of tourists would make a huge financial difference to COBAs. Just four tourists a year paying an entrance fee of 10,000 Ar (\$5) would bring double the current average operating costs of the COBAs in our sample were (42,000 Ar or \$20). In addition, ecotourists would provide direct valorisation of the forest's biodiversity, helping to align the interests of the communities with those of external stakeholders, whilst also providing external validation and informal monitoring of the community's efforts (something the system has singularly failed so far to do). Given the huge potential benefits of even very small numbers of ecotourists, we are surprised that more efforts have not been made to encourage the widespread participation of all COBAs. We think that the emphasis should be on simple schemes which any COBA can easily join, rather than intensively helping a few COBAs to provide a more upmarket product.

GENERATING COMMUNITY PRIDE: THE WARM GLOW EFFECT

Of course, COBAs can benefit their members and communities simply through existing and functioning and protecting the forest. Communities may take pride in managing their own lands, and in achieving a (limited) formal ownership of forests, they have always felt to be theirs. They will also take satisfaction in excluding outsiders, but probably rather less from limiting their own use of the forest. This should not be underestimated and may have a powerful reinforcing effect, strengthening the virtuous circle of community management. Indeed, from our experience, communities do place considerable importance on secure rights to manage and use their forests.

However, the way *Transfert de Gestion* is implemented tends to decrease these benefits to communities because rights are not secure. In addition, some "warm glow" benefits may in fact be dependent on use of the forest: for example for "recreation" in the form of honey or bird hunting, yet such activities are often prohibited or severely restricted by COBA's contracts. In addition, the advantage of a COBA is mainly perceived as that of maintaining the status quo, rather than improving the situation: a principal reason given by communities for supporting the COBA is that it would prevent "their" forest be sold off to outsiders (this threat appears to have been used to persuade communities to establish COBAs).

INTERNALISING EXTERNALITIES

The reason why external intervention is necessary to ensure the forest is conserved is that many of the benefits of conservation are felt by those far from the forest, while the costs are borne locally. These wider benefits are termed positive externalities, and tend to be under-supplied unless deliberate action is taken. COBAs represent one attempt to ensure the supply of positive externalities, but to date, very little effort has been made to transfer any of the benefits to COBAs and their communities.

GREEN OR FAIR TRADE PRODUCTS

One way to capture the positive externalities of sustainable, 'people-friendly' forest management is for COBAs to charge higher prices for forest products produced from COBA forests. This requires either:

- A combination of external verification of COBA management (certification) with a market for “green” or ethical products

or

- Action to restrict the illegal production of products in unsustainable ways.

Despite being mandated in *Transfert de Gestion* contracts, external verification of COBA management has been patchy at best, and generally restricted to “paper-based” exercises to check on their administration. Meanwhile, illegal logging continues in many parts of Madagascar, and the state has been either unable or unwilling to prevent this. A ready supply of cheap, unsustainable timber and other forest products will erode a COBA’s ability to charge a premium for “green” products, or even to cover the costs of management. Both certification and action against illegal production are beyond an individual COBA’s power, and external agencies have failed so far to play their part in assisting COBAs in this regard (see Coutinho 2007 for a discussion of ethical trade in Madagascar).

LOCAL EXTERNALITIES

The main local externality of forest conservation is watershed protection. Although this is a controversial subject (Bruijnzeel 2004), it is likely that, particularly on the western sides of the corridors, forests do help to ensure early season flows which are crucial for irrigated rice farming. However, as with other externalities, COBAs are almost completely powerless to capture any of the wider benefits of their actions: they cannot turn the water off, nor can they force farmers downstream to pay for water. Where development projects construct dams that are supplied by the forest, there would seem to be a good opportunity to build into the agreement a charge to be paid to the COBAs upstream for watershed protection. Where the dams are built in the same community, the COBA could be made the owner and manager of the dam. This would avoid duplication of administrative structures and act to reinforce the COBA, and the link between the dam and the forest. To date, this hasn’t happened, but opportunities to do this should be grasped in the future. Also in the future, there may be opportunities to harness water flowing out of the corridors for micro-hydroelectric generation. However, given the poor state of the local economy in many areas, and the poor purchasing power, such schemes are likely to require up to 100% capital support to be feasible (Leutwiler 2005). If tightly linked to the forest, and to the COBAs, such investment may be a good way to combine development with conservation, and merits attention.

INTERNATIONAL EXTERNALITIES

Several of the most important externalities of COBA management are felt at the international level. This is, after all, why so much of Madagascar’s environmental program, including ERI, is funded by international donors⁵⁹. However, to date there have been few attempts to transfer this funding to the ground level, in a way which was directly linked to forest conservation.

Table 8 below, gives estimates of the economic value of the positive international externalities of protecting the forest, in terms of biodiversity conservation and carbon

⁵⁹ For example, ERI is funded through US-AIDs Strategic Objective 6: ‘biodiverse ecosystems conserved’.

sequestration through avoided deforestation (based on Table A10 in Hockley and Razafindralambo 2006, see this report for more details: http://pdf.usaid.gov/pdf_docs/PNADI193.pdf).

TABLE 9: ESTIMATES OF THE POSITIVE EXTERNALITIES OF PROTECTING THE FOREST

Positive Externality	Approximate annual value (US\$ per hectare protected)
Non-use values of biodiversity conservation	42.61 ¹
Carbon sequestration	14.88 ²
Global Net Benefit of Conserving the Corridor³	59.79
Estimated costs of establishing and supporting COBAs	4.60 ⁴
COBA Operating and Patrolling Costs	0.08
Net benefit of conserving the corridor through COBAs	53.85

1. Mid-range NPV from table A10 = \$236,650,183, then annualised ($r=5\%$, 60 yrs), and divided by number of hectares in the corridor (29,3374). Value was based on contingent valuation studies of the willingness to pay for biodiversity conservation of US and German citizens by Kramer & Mercer (1996) and Menzel (2005) respectively.

2. Mid-range NPV of \$82,624,573 from Table A10, converted to annual per hectare dollars as for 1. Value was based on median estimate of marginal damage costs of CO₂ emissions from Tol (2005).

3. Total Net Benefit World= 332,101,942, subtracting best estimate of opportunity costs but not the transaction costs of protecting the corridor, either through ANGAP-style agency or COBAs. Then converted to annual per hectare values as per 1.

4 Estimates from WCS' program to support COBAs in Makira puts the costs of full support for COBAs at just over 70,000 US\$ per *Transfert de Gestion* site to set-up and support the COBA for 10 years, assuming that each COBA manages around 1500 hectares, this equates to 4.6 UD\$ per hectare per year. WCS expects these costs to be reduced after the first ten years. This is a very high level of support compared to that provided to most COBAs in Madagascar.

This table demonstrates two things. First, that the positive externalities of effective COBA management are very large, and second, that even allowing for significant transaction costs, in particular significant support for COBAs, it should be possible to use these benefits to support COBAs. Novel approaches of this kind are already being tested in Madagascar (Durrell Wildlife Conservation Trust 2005).

CONSTRAINTS ON COBAS CHARGING FOR EXTERNALITIES

A major limitation on the ability of COBAs to capture the value of such externalities at present is that they are constrained in their power over them. COBAs are required by law to protect the forest and *tevia* is illegal. They therefore cannot negotiate with outsiders who benefit from this protection, and thus far have had to rely upon their goodwill. External beneficiaries of COBA forest management have therefore enjoyed the benefits of these positive externalities largely for free, since COBAs have been unable to negotiate with them and extract payment. However, externalities tend to be under-supplied, and we may find that this supply is unstable over time.

HOW COULD COMMUNITIES BE PAID FOR POSITIVE EXTERNALITIES?

There is increasing interest worldwide in how payments for environmental services (such as watershed management, biodiversity conservation or carbon sequestration) can help fund conservation. Some authors, including Ferraro (2001) have noted that direct payments for ecosystem services (PES), may be the most efficient way of conserving the forest. However, in the context of Madagascar, where forest conservation implicates communities rather than individual landowners, PES will almost certainly have to be based on some form of community institution: COBAs provide an ideal structure for this. It is no accident that early trials of PES in Madagascar have often centred on COBAs (e.g. Durrell Wildlife Conservation Trust 2005). If one of the objectives of PES is to compensate for local opportunity costs, as well as ensuring the supply of conservation, COBAs may be especially effective because of the requirement that they be democratic. Of course, the difficulties associated with this are numerous, and COBAs will probably require external support and pressure to ensure that they are democratic. However, it will help to ensure that PES are distributed relatively 'fairly' within the community, which might not be possible if the distribution was undertaken by outsiders, who have less information on who bears costs within the community.

The main requirement for PES to be effective is that they be tightly linked to forest conservation, that payments are contingent on performance, and that there is an efficient mechanism linking producers to consumers, assuring a sustainable funding stream. Externally verified monitoring of COBA performance is therefore essential. Payments can take any form, not necessarily monetary. For example, existing programs of development assistance, or technical support for COBAs, if tightly linked to COBAs, contingent on performance, might be an effective form of PES if they succeed in achieving tangible results for the community. Indeed, it *may* be more efficient, in the long run, if payments are targeted in this way, rather than simply paying money. Although money might have a higher value to communities than the equivalent cost in, say, technical support to the COBA, if the assistance has the effect of changing livelihood strategies away from those which put pressure on the forest, the long-term efficiency may be increased, but this is by no means certain. For example, if a COBA receives support for an ecotourism venture, this may generate revenues *and* reduce the likelihood that the community will consider clearing the forest in the future. It is unlikely that rural villagers have an accurate idea of the likely future benefits from ecotourism (and admittedly these are difficult to predict) and promoting ecotourism may help to ensure the market signal reaches them. Recognising the externalities of COBA management provides both the justification, and the means to support that management. Instead of focussing too much on production from the forest, we should also provide tangible support to COBAs and communities which is contingent on forest conservation. In the short run this will be paid for out of existing intervention funds, but the goal should be to create a system which links COBAs more directly to the beneficiaries of their actions. That means establishing systems which by pass bilateral donors and international conservation organisations, and connect COBAs directly with those who value biodiversity, wherever they may be. Initially schemes which use the internet to disseminate information on COBAs and solicit voluntary donations like that of Fanamby's⁶⁰ would be a good way to start, and conservation NGOs would be well placed to assist with these. Markets in carbon credits are expanding rapidly, in particular the market for voluntary carbon offsets, which can be used to fund work which avoids deforestation,

⁶⁰ <http://www.fanamby.org.mg/en/help.htm>

in contrast to Kyoto approved offsets, which can only be used for reforestation (though COBAs could potentially access this market as well).

CONCLUSIONS

The most promising way to ensure COBA's and their communities benefit from their forest management is to directly valorise it. That means capturing externalities through payments for environmental services, promoting eco and cultural tourism, and certifying green and fair-trade products, including timber. COBAs need to play to their strengths, which is that they are an effective, people-friendly conservation mechanism, not try to compete in cut-throat domestic markets for low value products against unfair, often illegal, competition.

There is an important role here for external stakeholders who wish to help COBAs, and this approach to valorisation plays to the strengths of these stakeholders, who can offer credible verification and access to international and ethical markets.

SECTION 9 CONCLUSIONS

Transfert de Gestion in Madagascar has reached its 10th anniversary. However, there has been no comprehensive field-based evaluation of COBAs at the national level: of their financial viability; their local support and, most significantly, their performance at providing conservation benefits.

Our field visits and analysis suggest that communities engaged enthusiastically with the *Transfert de Gestion* concept when it was first introduced, and that COBAs are providing some degree of forest protection. However, they will not do so indefinitely unless they receive more support and consideration from external agencies. Membership figures are falling as individuals find that membership does not provide significant benefits. People are disillusioned with the implementation of *Transfert de Gestion* and feel let down on the promises which accompanied the signing of the contract.

As a result of insufficient realism about how COBAs can generate benefits, the current system of *Transfert de Gestion* works against COBAs, reducing their viability. The system has adopted a naive view of Community-Based Natural Resource Management, assuming a pure win-win scenario where the interests of communities and external agencies are perfectly congruent. The benefits that communities are likely to derive from improved forest management have been over estimated. Many do not have the right to undertake commercial exploitation, but given the current market conditions and without certification, green markets and a crackdown on illegal harvesting, sustainable legal timber produced by COBAs may not in any case deliver high enough benefits to cover the considerable costs of the external technical assistance required to ensure sustainability. If these conditions are created, sustainable timber production could help to strengthen COBAs.

COBAs are expected to be self-sufficient institutions, while their revenue generating potential is reduced by externally imposed constraints. COBAs are expected to deliver strict conservation, similar to that expected from ANGAP, at no cost to the state. It is for policy makers to weigh up the pros and cons of allowing COBAs more production rights or requiring more strict conservation, but they must recognise the implications of their decisions in terms of COBAs' need for external support. External stakeholders have, perhaps unwittingly, attempted to extract a free lunch from COBAs – expecting conservation at zero cost.

Instead, we believe that, just like national parks, COBAs need significant external support, if they are to fulfil their potential. By support we do not simply mean tangible or material support to COBA associations; supporting COBAs also entails providing a supportive policy environment, and favourable legal and institutional landscape. In the next section we list our recommendations, as to how external agencies, including the state, donors and NGOs could better support COBAs. Supporting COBAs won't be free. However, the benefits of conserving Madagascar's forests in an equitable way will be enormous, and we believe that COBAs, properly supported, offer a cost-effective way of achieving this aim. There needs to be a more imaginative debate about the role that communities will play in the *Nouvelles Aires Protégées*. If policy makers grasp this opportunity to work with COBAs, Madagascar could develop one of the world's first truly participatory, development compatible and effective systems of protected areas.

SECTION 10 RECOMMENDATIONS

1. THE ATTITUDE OF DONORS, NGOS AND THE STATE

The viability of COBAs has been threatened by a naive view of forest conservation as a pure win-win scenario for communities and external agencies.

EXTERNAL AGENCIES SHOULD:

1.1 RECOGNISE THE IMPLICATIONS OF TIGHTLY CONSTRAINING COBAS WHILE ALSO EXPECTING THEM TO BE SELF-SUFFICIENT.

Contracts must be rebalanced in favour of benefits to COBAs, in order to increase stability.

1.2 REVISIT THEIR ASSUMPTIONS OF THE DEGREE OF CONGRUENCE BETWEEN LOCAL INTERESTS AND CONSERVATION.

The conservation demanded by wider society doesn't have to be directly in the interests of communities in order to be the correct policy option. If communities are provided with support, measures that compensate for opportunity costs, they are willing to play their part in conserving the forests.

1.3 RECONSIDER THEIR INDIFFERENCE TO COBA PERFORMANCE.

The current system makes little attempt to evaluate the conservation performance of COBAs, nor to give adequate incentives for COBAs to perform. External agencies are not indifferent to COBA's performance and need to allocate resources to field-based evaluation programs.

1.4 CHANGE THEIR SHORT TERM VIEW OF CONSERVATION IN MADAGASCAR.

The short-term will be measured in decades not years, whichever mechanism of conservation is chosen. Do the donors really believe that all of the NAPs will be independent of external funding within five years? This mistake was made with respect to ANGAP⁶¹, which is still dependent on external support now. Donors should be more realistic, and plan for the long-term from the outset.

1.5 LEARN TO TRUST COMMUNITIES.

We have encountered in some quarters a patronising view of rural Malagasy. Trust begets trust, and the 'magic trick' of *Transfert de Gestion* cannot occur without real delegation of responsibility and rights. COBAs are capable of managing their forests as well if not better than other agencies, but external stakeholders need to trust and respect communities.

⁶¹ Durbin & Ratrimoarisaona 1996

1.6 STOP IGNORING THE EXTERNALITIES OF COBA MANAGEMENT: INTRODUCE PAYMENTS FOR ENVIRONMENTAL SERVICES.

In designing the *Transfert de Gestion* system, the positive externalities of COBAs have been ignored. Mechanisms need to be put in place to allow COBAs to benefit from the positive externalities that they create. See also 6.4 and 7.7 below.

2. SENSIBILISATION, AND ESTABLISHING COBAS

THOSE INVOLVED IN ESTABLISHING COBAS AND CARRYING OUT *SENSIBILISATION* SHOULD:

2.1 BE MORE CAREFUL OVER THE PROMISES MADE TO COMMUNITIES.

Great care should be taken to ensure that the oral contract matches the written one, in order to avoid disappointment later. Any promises of development assistance should be more carefully specified in a *protocole d'accord* signed by the COBAs and the development agency for the duration of the contract.

2.2 CREATE BASELINE MAPS OF FOREST COVER.

These should be created from participatory walks and agreed with COBAs. The edge of the forest should be walked using a GPS, with waypoints taken at frequent intervals, and numbered marks made on trees and the species noted. This should be re-walked at the end of the COBA's contract, and any *teviata* which had not already been reported should result in large penalties. The same will have to be done for any clearings in the forest. Fixed point photography, carried out in participation with the community, would also be useful. Copies of easily understood maps and photos should be laminated and displayed in an appropriate location in the community.

2.3 LODGE ALL INFORMATION ON EACH COBA IN A CENTRAL REPOSITORY.

The full GIS files of the transfer, including the forest edge, the boundaries and any zones, plus any other useful information like location of villages, must be stored in a central repository of information about *Transfert de Gestion* (see below). We have had considerable difficulty obtaining the GIS files for some COBAs and some communities do not have a map showing their transfer.

2.4 KEEP IT SIMPLE.

All management plans and *cahiers de charges* should be kept as simple as possible, particularly with respect to products that are not heavily harvested. For minor products, it may be more sensible to dispense with management plans altogether than create complicated rules which cannot and will not be enforced, and in any case are based on questionable science.

2.5 AVOID CREATING ZONES.

Unless there are strong reasons to do otherwise, zones should be avoided. They are hard to enforce, complicate management and restrict opportunities, and in any case it is far from certain that they improve sustainability. Communities can still voluntarily agree to create conservation zones if given incentives to do so. If zones must be

created, natural features like streams should be used for boundaries, not arbitrary lines.

2.6 HELP COMMUNITIES TO BE REALISTIC, RATHER THAN “EGGING THEM ON”.

Discourage COBAs from voting for innumerable taxes which will never be collected, or complicated quota systems. The rules of a COBA should be easily understood by all, and reproducible on a single village notice board.

2.7 ENSURE THAT THE RULES OF THE COBA ARE WIDELY UNDERSTOOD.

Easily understood maps of the transfer's boundaries, along with any zones should be enlarged, laminated and prominently displayed in several locations throughout the community. These notice boards should also display simple statements of the rules of the COBA, detailing any money that must be paid, and the names and duties of the COGE and polis-in-ala. Many of the maps we saw were difficult to understand and poorly produced, often lacking any notable features such as rivers. There was considerable confusion about the rules for entering the forest and harvesting forest products, and also over who held which positions in the COBA.

2.8 RECOGNISE THE TRADE-OFF BETWEEN PRODUCTION AND PROTECTION.

If production rights are not granted, this will have implications for the COBA's viability, and therefore for the support which they will need from outside.

3. SUPPORT FOR ONGOING COBA MANAGEMENT

There has been a tendency to abandon COBAs soon after their contracts have been signed. This is extremely damaging, and COBAs will need many years of gradually decreasing support. **External agencies should:**

3.1 ASSIGN WELL-QUALIFIED FIELD STAFF TO WORK CLOSELY WITH COBAS FOR AT LEAST THREE TO FIVE YEARS AFTER THE CONTRACT IS SIGNED.

These support staff will advise COBAs and help them to liaise with external agencies. Donors need to allocate adequate funds to recruiting and paying good field staff, to rebalance the system towards the field and away from the centre.

3.2 HELP COBAS TO ADOPT GOOD RECORD KEEPING PRACTICES AND FUNCTION DEMOCRATICALLY.

Many of the COBAs we visited were unable to produce complete accounts and records. Training is not sufficient: businesses in the USA would not keep good accounts if they weren't inspected every year, so why do we expect that COBAs will do so? An external monitor should check the COBA's accounts and membership lists at least every six months during the first 3 years of the contract and provide advice where necessary. This role should gradually be transferred to the commune. Accounts should be prominently displayed each year, so that irregularities can be spotted by the community, and non-payers named and shamed. Copies should also be lodged with the commune.

3.3 AGREE PROCEDURES FOR DEALING WITH PER DIEMS.

When representatives of COBAs attend meetings, hosts should provide certificates of presence which clearly state any financial support given to the representative, and COBA members, particularly the COGE, should know to expect to see these on his return.

3.4 SUPPORT ATTEMPTS TO COMMERCIALISE PRODUCTS, IF PRODUCTION RIGHTS ARE TRANSFERRED.

Production should be subject to checks on a case by case basis, but this should be streamlined and transparent. It seems that few COBAs know how to go about getting authorisations for producing forest products, or carrying out sustainable exploitation. There is no point transferring exploitation rights, if red tape and unfair competition prevents them from being used.

3.5 BRING TOGETHER CURRENT KNOWLEDGE ON NTFP HARVESTING AND BIOLOGY.

Currently, COBA *cahiers de charges* are based on a poor understanding of the ecology and harvesting of NTFPs. We need to bring together the state of knowledge on commonly harvested NTFP products, to create simple guidelines. The emphasis should be on adaptive management and keeping procedures to a minimum for most products unless they are heavily harvested.

3.6 PROMOTE SMALL-SCALE ADVENTUROUS ECOTOURISM IN COBAS

We do not accept the view that only a minority of COBAs have the potential for ecotourism. There will always be a demand for going somewhere off-the-beaten-track, away from other tourists, and thus tourism will have the tendency to spread unless artificially corralled. COBAs on the edge of large blocks of forest would be in a strong position to offer guided backpacking trips across or along the corridors: for example, Didy to Anjahamana. There is a significant minority of tourists in Madagascar for who the opportunity to do something more adventurous, and less constrained outweighs the desire to see five species of lemur in one day. COBAs will also be in a unique position to offer cultural tourism, combining visits to the forest with learning about the local way of life. Researchers should also be encouraged to visit COBAs, and to provide feedback through an on-line forum to other researchers on the potential of each site for different taxa. The financial impact of even very small numbers of tourists or researchers will be extremely significant relative to COBA's operating costs and revenues.

4. THE STATE

All forest is owned by the state and COBAs form part of the state's forest management network. It should be obvious that COBAs will never achieve their potential if the state is weak, and donors need to address this problem urgently. **The state must:**

4.1 PREVENT ILLEGAL AND UNSUSTAINABLE HARVESTING AND BACKUP COBA ENFORCEMENT.

Unfair competition must be eliminated, and all private and state operators subject to the same constraints as COBAs. COBAs must be supported by the state in their attempts to enforce rules.

4.2 CLARIFY THE RULES WITH REGARD TO MINING IN TRANSFERS.

Ensure COBAs are familiar with the rules, and are confident enough to challenge illegal miners.

4.3 RESPECT EXISTING TRANSFERS.

Any decision to change the status of COBAs, or withdraw production rights should not be taken lightly. The consequences go beyond lost exploitation opportunities, and affect the relationship between communities and all external agencies.

4.4 HAVE THE RESOURCES TO MONITOR COBA MANAGEMENT.

Good monitoring will strengthen COBAs, but this is impossible unless the SEF has adequate resources and capacity.

4.5 MAINTAIN REGIONAL OR NATIONAL REPOSITORIES OF DATA ON COBAS.

Including digital copies of all contracts, *cahier de charges*, *plans d'aménagements*, plus GIS data. Also copies six-monthly reports from COBAs, ad-hoc reports, and reports from *Organismes d'Appuis*, together with record cards filled in by ecotourists and researchers (which could be completed on the internet).

4.6 TAKE A LESS MEASLY APPROACH TO TENURE.

Transfert de Gestion, particularly GCF, represents a very limited transfer of tenure. COBAs should be granted tenure over reforested areas, allowing them to receive

carbon credits⁶². COBAs who have successfully completed the first three years of the contract could be rewarded with more secure tenure. Eventually, communities which perform well could be given ownership of the forest.

⁶² *Réserve de Reboisement* legislation should allow this but has proven overly bureaucratic.

5. DEVELOPMENT ASSISTANCE AND COBAS

Development assistance forms a major part of community expectations, and is one way of paying for ecosystem services, and reducing communities' reliance on *teviāla*. Since COBAs are directly linked to the forest, and instrumental in its protection, ERI and other agencies' development assistance should be more tightly focussed to support and strengthen COBAs.

5.1 DEVELOPMENT ASSISTANCE MUST BE TARGETED TO THE COMMUNITIES ON THE FOREST EDGE.

NOT simply villages in the *communes* which border the forest, but the villages and hamlets at the forest edge. This necessitates avoiding the road-bias which is pervasive in development.

5.2 ASSISTANCE SHOULD BE PROPORTIONATE TO THE APPROXIMATE SCALE OF THE OPPORTUNITY COSTS.

For example, the productivity of existing land would need to increase so as to offset decreases in the availability of new land (while holding labour requirements constant)⁶³.

5.3 ASSISTANCE SHOULD BE SCALED-UP TO REACH ALL COMMUNITIES AFFECTED BY NEW PROTECTED AREAS.

Not limited simply to existing zones of intervention

5.4 ASSISTANCE SHOULD BE LINKED TO CONSERVATION AND CONDITIONAL ON THE COMMUNITY CEASING *TEVIALA*.

The community should clearly identify the development assistance with their conservation efforts, and recognise it as just compensation for foregone opportunities. In order to achieve this vision, we make the following recommendations:

5.5 ALL *USAID* AND OTHER DONOR ACTIVITIES IN CORRIDOR REGIONS SHOULD EXPLICITLY LINK DEVELOPMENT ACTIVITIES TO COBAS. THE EXISTENCE OF ACTIVE AND FUNCTIONING COBAS SHOULD BE A REQUIREMENT FOR ANY FOKONTANY OR COMMUNE TO RECEIVE ASSISTANCE.

This will force mayors to take a greater interest in COBAs and to play a more active role in monitoring and supporting them.

⁶³ There is surprisingly little data on the increases in the productivity of land obtainable from improved rice cultivation methods *while holding labour constant*. Yet this is essential to determine whether they can offset the reduction in the availability of new land.

5.6 PROVING MEMBERSHIP OF A COBA SHOULD BE A REQUIREMENT FOR ANY INDIVIDUAL TO OBTAIN ASSISTANCE FROM ERI, E.G. IN THE FORM OF TRAINING OR EQUIPMENT.

This will strengthen the COBA, add value to membership and help the COBA to deal with free-riders.

We are not proposing an increase in the proportion of ERI's budget that is aimed at COBAs, but rather that nearly *all* of ERI's budget should be linked to COBAs. Note that this doesn't mean that ERI can't for example, help to build roads to rural communes, but it should ensure that these roads reward good performance by COBAs, and are closely linked in people's minds to forest conservation.

This will serve to:

- 1) Increase the regard with which COBAs are held
- 2) Increase the frequency of interactions between ERI and the COBAs
- 3) Increase the visibility of COBAs
- 4) Tie ERI funding to the forest

External agencies should think carefully about how their actions affect the value to a community of having a COBA, and to individuals of being a member of a COBA. They should take every possible step to ensure that they make it as easy as possible for COBAs to deal with free riders and muster community support.

5.7 ERI SHOULD RECOGNISE 'FOREST FRONTIER GUARDIANS'

In a similar scheme to that operated by the FCE trainline, ERI should identify and recognise farmers who farm land contiguous with the forest. These could then be specifically targeted for support, subject to their forest boundary remaining stable. ERI should also monitor the participation of these "guardians" in its interventions to check whether the program is really reaching the farmers on the edge of the forest. If guardians are identified during the process of marking the boundaries of the forest, there need not be any concerns that the scheme would favour those who still practice *teviaia*.

5.8 PEACE CORPS VOLUNTEERS SHOULD BE LINKED TO COBAS

COBAs should be encouraged and assisted to request PCVs, and PCVs should be preferentially allocated to villages with COBAs. PCVs could play an important role in developing tourism (see below) and also with the ongoing monitoring of COBAs.

5.9 KOLOHARENA SHOULD SUPPORT COBAS

COBAs should have preferential access to the KH system and confederation. There is a risk that the success of the koloharena has distracted attention away from the forest edge. From our interviews, farmers close to the forest, who might be members of the COBA tended not to be members of the KH, or to have received trainings on improved agricultural techniques. Since ERI's funding is explicitly linked to the forest, the focus should be on ensuring that COBAs benefits from the KH movement. For example, where downstream KH members rely on water from the forest, USAID should pressure them to support the COBAs upstream.

5.10 DEVELOPMENT AGENCIES SHOULD QUANTIFY THE IMPACT OF AGRICULTURAL DEVELOPMENT ACTIVITIES, PAYING PARTICULAR ATTENTION TO INCOME PER UNIT LABOUR

There is surprisingly little quantitative information on the effects of agricultural development activities, such as dams and novel techniques. Many novel techniques increase productivity per unit area, but require greatly increased labour, and some may be infeasible. There is a tendency amongst agronomists to emphasise increased productivity of land over productivity of labour, though the latter is equally important in determining poverty levels. It is extremely difficult therefore to assess the impact of agricultural development assistance on rural incomes, and to compare productivity gains due to agricultural development with losses due to closure of the agricultural frontier.

We need more quantitative evaluations of programs, including the collection of baseline. For example, our interviews suggest that the construction of barrages and vulgarisation of SRA techniques, in Angalampona have significantly increased the productivity of both labour and land as well as increasing the amount of land farmed. However, we were unable to assess this rigorously, because there had not been any baseline surveys of labour productivity or of land area farmed, prior to the construction of the dams.

6. A VISION FOR COBAS IN THE *NOUVELLES AIRES PROTÉGÉES* (NAPS)

6.1 THERE SHOULD BE A MORE IMAGINATIVE DEBATE OVER THE ROLE THAT COBAS CAN PLAY IN THE NAPS.

Donors must make a realistic assessment of the likely costs of each alternative conservation mechanism, whether it be COBAs or para-statal organisations similar to ANGAP, and to ensure that they are comparing like with like. We believe that COBAs, even if provided with significant external support, will be cost-effective when compared to ANGAP-style institutions or NGOs and will offer particular advantages in terms of ensuring participation, on-the-ground monitoring and compensation.

Even though COBAs are currently compelled to manage extensive conservation zones, they do not appear to have been considered as a possible mechanism for providing strict conservation in the NAPS.

6.2 COBAS CAN PROVIDE STRICT PROTECTION AND SHOULD BE CONSIDERED AS A DIRECT ALTERNATIVE TO THE STATE, PARASTATAL ORGANISATIONS OR NGOS FOR PROTECTED AREA MANAGEMENT.

We believe that, given the right incentives, COBAs are capable of providing strict biodiversity conservation in a cost-effective manner. Payments for Environmental Services are being tested in Madagascar, and provide a good way to support COBAs.

Some may object that this isn't sustainable, but it is important to distinguish between sustainability and self-sufficiency. Thus national park guards are not self-sufficient, because they will always have to be paid. We doubt there is a national Parks service anywhere in the world which is self-sufficient. The difference is that by providing COBAs with incentives to manage the forest, you may buy the cooperation of the community, rather than a few individuals.

There is an urgent need to start supporting and monitoring some COBAs during the temporary protection phase of the NAPs, so that we can get a good idea of how much this will cost, and to determine how soon support can be transferred to more sustainable mechanisms like payments for environmental services, carbon sequestration credits and ecotourism.

6.3 SUBJECT TO ADEQUATE FUNDING, AND THE INFORMED CONSENT AND INTEREST OF COMMUNITIES, THE COVERAGE OF *TRANSFERT DE GESTION* SHOULD BE INCREASED TO SURROUND EACH NAP.

In this way, all forest edge communities would be implicated in the management of the NAPs, and there would be a mechanism for ensuring that rural development was not compromised, but made contingent on the performance of communities in conserving the forest.

6.4 THE LEVEL OF BIODIVERSITY SUPPORT FOR COBAS SHOULD DEPEND ON THE CONSERVATION PRIORITY OF THE FOREST, AND THE CONSTRAINTS PLACED ON COBAS

Conservation-oriented COBAs who voluntarily gave up exploitation rights could receive higher levels of support than 'production-oriented' COBAs.

We could therefore envisage three stylised types of COBA:

Basic COBA

Where pressures are low (e.g. where little forest remains), biodiversity values are low, and production opportunities are limited, COBAs must have low costs because they will generate few benefits. These COBAs should have greatly simplified management regimes: unrestricted subsistence and commercial use (subject to existing informal institutions) strictly no *teviata* and minimal patrolling. External monitoring would focus on the maintenance of forest cover, and satisfactory performance would bring a basic level of support to keep the structure of the COBA running (basic level biodiversity payments).

Production-oriented COBA

In areas with significant potential for generating revenues for production, but low biodiversity values, COBAs *may* be able to generate sufficient benefits for communities, if provided with technical support, certification and a favourable legal and market situation. These COBAs could still receive Payments for Ecosystem Services, including biodiversity payments, to the extent that their production activities were compatible with the production of externalities, and these could take the form of external technical assistance with production.

Conservation-oriented COBA

Where biodiversity values are high, external agencies might negotiate a strict conservationist stance with COBAs, in exchange for higher levels of biodiversity payments. Assistance might also focus on reducing reliance on the forest by increasing the supply of non-forest alternatives to forest products, particularly reforestation for fuelwood.

Where high biodiversity values coincide with production potential, COBAs might be offered the choice to refrain from production in exchange for higher biodiversity payments, or they might be compelled to do so.

7. A NETWORK OF COBAS

At present, approaches to establishing and supporting COBAs are fragmented, with individual *organismes d'appui* having a great deal of power over individual COBAs, and sometimes paying little regard to the viability of the COBAs they create. COBAs are relatively powerless and marginalised, despite their critical role in delivering forest conservation. The wider institutional and legal landscape is often deeply unfavourable to COBAs, with little support provided by the SEF. Finally, the support COBAs do receive is subject to the spending plans of donors and can rarely be relied upon for more than a few years at a time.

Although the state must eventually be strengthened in the forestry sector, a quasi-statutory body that would regulate and represent COBAs could help to fill the gap, and fulfil many other important functions, outlined below. However, most of these goals could be achieved in the short-term, through concerted action by donors, NGOs and the state. Therefore, the formation of a new body for the long-term should not distract from the task of dealing with the issues highlighted above, for those COBAs which already exist.

7.1 DONORS SHOULD LAUNCH A FIVE YEAR PROGRAM, WHICH WOULD DEVELOP A NATIONAL QUASI-STATUTORY BODY TO REPRESENT AND COORDINATE COBAS

The role of acquiring funding and channelling this to individual COBAs, while providing externally-respected certification of COBA's performance would be gradually delegated to this organisation. This network would be organised on a regional basis, centred initially around NAPs or ERI zones of intervention, and have the following tasks:

7.2 PROMOTE SMALL-SCALE ECOTOURISM IN COBAS.

(See Rec 3.6) The network could provide a central booking and information service for COBAs receiving ecotourists. This will generate revenue, but will also valorise directly the conservation work done by COBAs, as well as providing informal monitoring of the COBA. Tourists and researchers visiting COBAs would be encouraged to report their experiences, and any problems they noted back to the network. Long-term researchers would be particularly useful in this regard.

COBAs receiving tourists would pay a small *ristourne* to the network, both to cover its costs and to recognise the importance of the other COBAs in maintaining ecological integrity.

7.3 PROVIDE TECHNICAL SUPPORT TO COBAS.

Give training in forest management, accountancy etc.

7.4 REPRESENT COBAS.

Give COBAs a political voice at regional and national levels.

7.5 MONITOR COBAS.

Membership of the network would be conditional on maintaining basic standards, and passing annual inspections: both of administrative competence, as well as conservation performance.

7.6 PROVIDE A CERTIFICATION SCHEME FOR COBA PRODUCTS

Linked to monitoring COBAs, is the certification of their management. This could cover NTFPs, forest-related crafts, ecotourism and carbon credits as well as timber (where logging rights exist). Initially, the aim would be to develop a Madagascar-wide 'COBA brand', which would be promoted to tourists as well as residents. However, the eventual aim should be to achieve international certification, especially for timber and carbon credits.

7.7 CHANNEL PAYMENTS FOR ECOSYSTEM SERVICES, INCLUDING BIODIVERSITY PAYMENTS

The network would both solicit funding for COBAs as well as distributing the funds according to their performance. Durrell's participatory ecological monitoring program provides one template for this. The network would also negotiate carbon offset agreements at the level of the corridor or nationally. This could include both Kyoto-approved credits for reforestation, and voluntary carbon offsets for avoided deforestation.

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