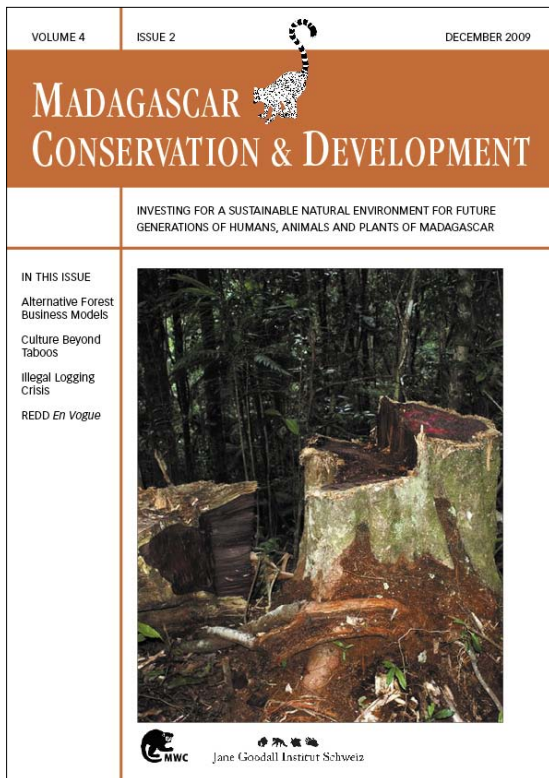


REDD in Madagascar: An Overview of Progress



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Executive Summary

Madagascar is well known as a *Biodiversity Hotspot*, or global priority for conservation, due to its high levels of endemic species and the significant levels of habitat conversion caused by man. It is also well known as one of the world's poorest nations, with poverty being one of the drivers of deforestation.

The island has been a focus for much international attention and intervention in the conservation sector since the late 1980's. This period has seen the establishment of various new policies and strategies for conservation, as well as the creation of new national institutions serving various functions for forest monitoring and management. Madagascar has been something of a testing ground for various 'new' models of conservation intervention. Integrated Conservation and Development Projects (ICDPs), Community Forest Management (CFM) and Payments for Ecological Services (PES) are among these new policies which have been tested and implemented across the country.

Most recently, following a Presidential Declaration in Durban in 2003, Madagascar has started a significant expansion of its protected area system, moving from a protected area network based principally on strict conservation areas, to a system which, in 2009, includes new categories of protected area which have many more residents, and tolerate many more human uses of natural resources than the older style reserves. Many of these new protected areas are based on community forest management agreements where certain rights and responsibilities are transferred to local community associations through time-bound contracts. Since the declaration in 2003, the protected areas network has more than tripled in size.

Success in combining conservation and development, in projects which strive to ensure that people's livelihoods do not suffer from protecting biodiversity, has remained somewhat elusive. Some critics argue that a fundamental problem remains unsolved, namely that efforts at land tenure reform and the design of forest policy at the community level neither confer ownership, nor permanent use rights to forests, and that well established customary tenure systems are being ignored by a dogmatic state. This situation appears to provide a disincentive for both conservation and the uptake of long term forest management strategies by communities. Tenure is by no means the only challenge associated with establishing operational and effective community forests, which also include: an insufficient allocation of donor funds and capacity support to communities, a lack of viable livelihood alternatives, a 'dysfunctional' forest service and a mismatch with the 'Malagasy ethos', traditional institutions and hierarchies, and significantly that views on what is the best and most legitimate use of the forest vary widely.

The emergence of 'REDD' has been seen by the conservation movement in Madagascar as a prime opportunity for providing much needed resources to simultaneously improve the impacts of conservation projects and to enhance local livelihoods. At present Madagascar is seriously engaged with the REDD process, both in country through a national working group and five pilot REDD projects, as well as internationally supported by participation in projects such as the Forest Carbon Partnership Facility (FCPF) & USAID's Translinks Project.

Madagascar is considered to have a high potential for both REDD and Clean Development Mechanism funded activities, due to its high rates of deforestation (0.53% pa for the period 2000-2005) and relatively low forest cover (15.88% of land area). The current state of knowledge on deforestation trends and capacity to monitor it is excellent, although most of this work has been donor and NGO led, and done on an *ad hoc* basis. The Malagasy state has a great need for improved capacity and additional resources to be allocated in order to take responsibility for its own forest cover monitoring.

The five 'REDD Pilot Projects are also led by non state actors, with five international NGOs (WWF, WCS, CI, Good Planet & Inter-Cooperation) and a range of donors (USAID, GTZ, Air France, Biocarbon Fund & CI) taking the lead in their implementation. Three of the projects ('CAZ', 'COFAV' & 'Makira') are already preparing to sell carbon credits on the voluntary market using the Climate Community & Biodiversity Standard (CCB). Makira, which is WCS led is doing this through a NGO-Government agreement (the *Makira Carbon Company*), and the other two projects which are CI led, are working through NGO technical and financial support for Government led project submission. The remaining two projects are not currently intending to sell carbon credits. The first, REDD-FORECA (GTZ/IC) is focused solely on generating knowledge and capacity building for REDD issues, whereas PHCF (WWF/Good Planet) has both a research programme to develop methodologies and is establishing new protected areas, undertaking habitat restoration and transferring forest management to communities.

At least six other REDD projects are understood to be under development in Madagascar, and in addition there are at least another six carbon forestry projects which could provide important input into REDD developments on the island. Information on these is presented.

Two main suggestions emerge from this review:

I. Community Forest Management will be the Basic Building Block for REDD in Madagascar – but it needs a lot more support to make it work:

Protected areas, based on strict conservation in corridors and core zones, and with community use zones in the periphery or buffer zones, make up the main body of field sites where REDD is being tested on the ground. Most legally recognised community forests are at present not fully operational (indeed some are totally non operational), and as these are the basic building blocks of a future REDD regime, very significant efforts are going to be needed to improve this situation. Scaling up of investments in livelihood alternatives for forest communities, and more time and capacity building is needed to ensure such alternatives work. The means of communication with the all parts of the communities concerned should be improved; all too often many members of the communities lack a good understanding of the rules and procedures of community forestry. The forest administration needs to be reformed at the base level, forest officers are still illegally bribing and fining farmers and the national forest observatory admits that it is unable to do much about this. Finally, more committed efforts are required to ensure that good governance in local forest management associations (COBA's/VOI's) is operationalised.

- 2. Many Malagasy could be considered as 'Indigenous Peoples' and 'Forest Dwellers' and as such they should have legal rights over their lands including forests** - There appears to have been a downplaying of the existence of forest-dwellers in Madagascar, as well as a reluctance to recognise that many of Madagascar ethnic groups could be argued to be formally classified as 'indigenous'. This is linked to the unwillingness of the Malagasy state to recognise customary tenure over forests, which as a real functioning system has been well documented. The state appears not to want to cede ownership of the forests to rural people as would be required of them were ILO Convention 169 (1989) and the UN Declaration on the rights of indigenous peoples (UNDRIP, 2007) to be carefully considered. Unfortunately many anthropologists and social scientists specialising on the people of Madagascar, and their customary tenure systems, are somewhat disengaged or distant from contemporary policy debates. It is very important that space is made at the national level to better incorporate knowledge of the Malagasy customs and systems which are *de facto* managing the rural lands and forests. If this space is not created, and if policy does not change radically, tradition and an ineffective state will continue to undermine many forest conservation efforts, and lead to either the failure of REDD or violations of the human rights of the indigenous rural Malagasy.

This report has been prepared as an English language resource for scholars, practitioners and individuals interested in efforts to introduce policies and pilot projects to access Carbon Finance related to 'Reduced Emissions from Deforestation and Degradation' (REDD). The motivation was originally just to find out more about this very *a la mode* topic, but developed into a hope of encouraging more people to pay attention to the issues of land tenure, livelihoods and governance for Madagascar's millions of forest dependent people.

Its preparation was helped a great deal by a number of friends and colleagues based both in Madagascar and internationally. I would like to break with tradition and not use this space as a name dropping exercise (the people who have helped me know who they are anyway!). But I would like to sincerely thank them all for their time, sharing of information, documents and their frank and engaged views on REDD and conservation in Madagascar more generally. I owe a few of them a lunch or two now! The maps and photographs which are not my own are taken from publicly available materials and are cited accordingly.

Needless to say, any errors or omissions in the report are my own, sorry for those. Where information has been derived from published or other documents I have cited it, where citations are absent this probably indicates that I am expressing my personal views or analysis on the issues or have absorbed the information from somewhere else over the last 11 years that I have been working on Madagascar and forest related issues.

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The report is independent; therefore its contents do not represent the institutional views of the University of East Anglia or the School of International Development.

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A: Madagascar Policy Context: Forests and Conservation

A Renowned 'Biodiversity Hotspot'

Madagascar is renowned for its extremely high levels of endemic species, with an estimated 80% of the fauna and 90% of the flora of the island being found nowhere else on earth. This has earned the island various labels indicating its importance as a conservation priority one of the most popular being 'Biodiversity Hotspot' (Myers et al., 2000). It is also typically portrayed as a prime example of poverty driving deforestation for slash and burn subsistence agriculture. Indeed, a popular environmental degradation narrative which claims that 90% of Madagascar's habitats were destroyed by man in the two thousand or so years since his arrival on the island¹ is still highly prevalent.

Establishing a National Environmental Plan and New Institutions

Madagascar came to the forefront of the global biodiversity conservation in the late 1980's when economic and political liberalisation allowed led to improved links with international financial institutions and governments of Europe and North America, and an influx of interest by aid agencies and international NGOs. Following the passing of a national environmental charter in 1990, multilateral and bilateral conservation programmes were rolled out under the framework of a 3 phase - 15 year national environmental action plan (NEAP), of which the third phase is currently coming to an end. During the NEAP activities various national organisations were established to provide supporting roles to the forest administration, including: ANGAP to manage protected areas (ANGAP became Madagascar National Parks (MNP) in November 2008), A National Environmental Office (ONE) to oversee environmental impact assessments and monitor environmental change and a National Association for Environmental Action (ANAE) to implement environmental interventions in the field.

Reform of the Forest Service

The forest administration has also evolved significantly during the last 20 years – with the statutory responsibilities for the management of water, the environment and tourism being periodically subsumed and separated from the core Forest Service. At present management of forests, including protected areas, falls under the remit of the Ministry of Environment and Forests (MEF)². At the central level this ministry has collaborated with a diversity of bilateral and multilateral schemes or interventions to improve forest management. Some of the most significant of the **recent** ventures in forestry reform by donors were:

- **USA Cooperation:** USAID – JARIALA – a Forest Sector Reform programme (Zoning, Procedural Improvement, Deforestation Analysis, Sustainable Forest Production) implemented by US Based Company IRG (2004-2009).

¹ In 2009 the narratives of the type: 'only 10% of Madagascar's natural habitat remains...' still features in many academic articles, popular media and conservation publicity materials, despite its accuracy having been frequently questioned and disproved by a number of scholars. (See Virah-Sawmy, 2009 for a recent critique).

² MEF (Ministère de l'Environnement et des Forêts) as it is now, was previously MEFT (Ministère de l'Environnement, des Forêts et du Tourisme), before that it was MEEFT (Ministère de l'Environnement, des Eaux et Forêts et du Tourisme), prior to that MEEF (Ministère de l'Environnement, des Eaux et Forêts) and prior to that MEF (Ministère des Eaux et Forêts).

- **German Cooperation:** i) GTZ : PGRN – a Forestry Management Program implemented by the German Technical Cooperation (ongoing). ii) KFW – Large Protected Area Programs.
- **World Bank** (and associated bodies)– support for the Forest Administration to implement parts of the third phase of National Environmental Action Plan ‘PE3’ and funding many of ANGAPs operational costs (NEAP Phase 3: 2003-2009).
- **French Development Cooperation** – FFEM/AFD/Priority Solidarity Funds (FSP) – which implemented a range of forest policy and protected reform activities, establishment of community managed forests and new protected areas. (Ongoing).

From Colonial Forest Policy to ICDPs

Many forestry policies in Madagascar originated during the French colonial era (i.e. before 1960), including the core of the system of strictly protected areas (National Parks, Integral Nature Reserves and Special Reserves) as well as classified forests and hunting reserves. As the NEAP began to be rolled out in the early 1990’s, so began a period of development of ‘new policies’ to improve forest management. An array of the early Integrated Conservation and Development Projects (ICDPs) were implemented in Madagascar (including renowned projects in Ranomafana, Ankarana, Andohahela, Masoala, Zahamena, Beza Mahafaly among others). The ICDP concept was to provide sustainable livelihoods (improved agriculture, ecotourism, honey/silk farming), education and health intervention on the periphery of the National Park.

Community Forestry Policies Emerge

In 1996 the first community based natural resource management (CBNRM) law was enacted in Madagascar, the policy was known as GELOSE³ and facilitated the time bound transfer of management rights of natural resources to local communities. In implementation GELOSE was applied mainly to forests but was also applied to marine and freshwater fisheries. In 2000 a ‘streamlined’ policy specifically for forests was enacted, known as GCF⁴, it could only be used for transferring management of forests to communities. GCF (and to a lesser extent GELOSE) have been used across the island by NGO’s and Donor Programmes for establishing ‘Community Forest Management’ (CFM) by local associations established for the purpose (Associations are known as : VOI’s & COBA’s)⁵. Despite many published strong criticisms of the efficacy and poor implementation of these CFM agreements⁶, many communities have received renewals of their contracts following evaluation of the first 3 year term of their contracts. It is worth noting that a ban on forest clearing for agriculture has been in place for many periods of the last century (although enforcement and minimising complicity and corruption in the forest administration is far from successful), and this also applies within CFM. Legally, almost all natural forests in Madagascar still belong to the state, although various forms of customary tenure exist across much of the island. A national land tenure reform programme (PNF⁷) has been operating since 2005, but is focused principally on simplifying the obtention of land titles for permanent agricultural fields, not on

³ GELOSE – Gestion Locale Sécurisée (Secured Local Management).

⁴ GCF – Gestion Contractualisée des Forêts (Contracted Forest Management).

⁵ VOI – Vondron Olona Ifotony ; COBA – Communauté de Base. Legally Recognised community associations with an ‘elected’ management committee (COGE – Comité de Gestion) – who sign time bound contracts with the forest service to take charge of forest management.

⁶ Examples of Studies heavily criticising CFM effectiveness are : Hockley & Andriamaravololona 2007 ; Montagne et al 2007 ; Casse, 2007.

⁷ PNF = Programme Nationale Foncière (National Land Tenure Programme).

legitimising customary tenure of forests (although it could be applied to forests). Much work is still to be done to better integrate these well established customary forest tenure systems, and the associated shifting and expanding agriculture with legally recognised mechanisms such as CFM and the PNF.

Durban Vision Triggers a Massive Expansion of Protected Areas

The next significant milestone in Malagasy forest policy was in 2003. The then president of Madagascar, Marc Ravalomana, had been convinced by part of the international conservation lobby to adopt a policy where his government would triple the area of Madagascar's protected areas within 5 years. This would mean a target of protecting an estimated 6,000,000 hectares of terrestrial habitats in order to attain the IUCN recommended level of 10% coverage. This policy, which was announced at the World Parks Congress in Durban, South Africa became known as the 'Durban Vision'. In the 6 years since the *Durban Vision*, protected areas have expanded from 1 761 927ha to 5 584 570ha⁸ more than exceeding the tripling of the pre 2003 level, and now reaching 9.44% coverage of Madagascar's land area.

The protected areas established in the colonial era, plus extensions and adaptations to their limits, as well as some new protected areas created before 2003 all fit into three of the strictest IUCN categories for protected areas (I, II, IV)⁹. These areas were often relatively or very isolated, characterised by difficult terrain making them relatively unfavourable to permanent settlement and intensive agriculture, and had often relatively low human population density. In relative terms (for Madagascar) you could call many of that generation of protected areas 'wildernesses'. These areas are almost all managed by Madagascar National Parks (MNP – formerly ANGAP), with the exception of a small number whose management is delegated to other bodies such as the Wildlife Conservation Society in the case of Masoala National Park.

In order to meet the ambitions of the Durban Vision it was necessary to establish dozens of New Protected Areas (NPAs) across Madagascar. Many of these new protected areas were home to more significant human populations than the previous PAs and had more significant dependence on the use and clearance of the forest for local livelihoods.¹⁰ These new protected areas typically fall into IUCN Categories III, V & VI¹¹. Legislation for these new types of protected areas was drawn up in the years after the Durban Vision was declared¹². Many of the new protected areas have zoning and management arrangements which are based on agglomerations of community forest management transfers (GCFs). Some of these NPAs were also suitable to have core 'strict conservation zones'¹³ which have management objectives more in line with the older stricter protected areas of Madagascar, others have a more fragmented series of conservation zones.

⁸ Green Synergy 2009a, Réduction des émissions de GES dues au déboisement et à la dégradation des forêts à Madagascar : Etat des lieux et expériences en cours. Unpublished Report to the Madagascar REDD Technical Committee. Analysis by REBIOMA.

⁹ I = Reserve Naturel Integral; II = Parc Nationale; IV = Reserve Speciale. (See Annexe 1 for detailed presentation of categories).

¹⁰ There are no doubt exceptions to this generalisation, such as Makira Protected Area, which does have significant areas of relatively 'inaccessible wilderness' and as a new protected area is considered as IUCN Category II.

¹¹ III = Monument Naturel; V = Paysage Harmonieuse Protegee; VI = Reserve des Ressources Naturel. (See Appendix on P44).

¹² Durbin, 2006, provides an accessible overview of the development of new protected areas categories in Madagascar.

¹³ Core Strict Conservation Zones known as 'Noyau Dur' (Hard Core).

International NGOs, Community Forestry & Protected Areas

NGOs and Research Agencies have played an important role in both the development and implementation of community forestry policies and in the establishment of new protected areas. Three of the four largest US based international conservation NGOs¹⁴ have major programmes in Madagascar (World Wildlife Fund (WWF), Wildlife Conservation Society (WCS), Conservation International(CI)¹⁵), all of them have promoted, implemented or funded community forest management transfers (through GELOSE/GCF) and since the Durban Vision have 'promoted' the establishment of New Protected Areas. Various other international and national NGO's have also played a pivotal role in attaining the level of CFM and New Protected Area coverage seen today (these include NGOs such as: Missouri Botanical Gardens (MBG), Durrell Wildlife Conservation Trust (DWCT), The Peregrine Fund, Vintsy/Birdlife International, Man and the Environment (MATE), FANAMBY, Intercooperation, SAHA, GERP, Madagasikara Voakajy, Mitsinjo).

The research community has also been closely involved in conceiving CFM policies and in designing their implementation in certain areas. Researchers and consultants have also played a key role in evaluating and critiquing CFM, and are currently observing the transition from individual community forest management agreements into federations of them forming the new generation of Madagascar's protected areas. French and German applied research institutes; as well scholars and practitioners from North American and other European academic institutions have been closely involved in these activities and other forestry interventions in Madagascar. Organisations with people involved in this area of work includes: Institute de la Recherche pour Développement (IRD), Centre International de Recherche en Agronomie pour le Développement (CIRAD), The World Forestry Institute (VTi) Hamburg, Madison Land Tenure Centre, Cornell University, University of Roskilde.



¹⁴ Brockington D, 2009, Celebrity Conservation: Fame Wealth and Power in Conservation, Zed Books, London.

¹⁵ The Nature Conservancy has provided technical support for various priority setting and management planning tools (such as the 5S Target Setting System), but does not have an in country programme.

Livelihood Challenges Persist: Trials of Compensation Payments

In response to the challenge of providing improved and alternative sources of revenue to make community forestry and new protected areas work without inducing degradation of the quality of life of forest people, the conservation movement in Madagascar has also made efforts to use payments for ecosystem services (PES). Reflection on this started in 2001 with a study by Durbin and colleagues. PES is both to serve as an incentive for conservation and to compensate communities for lost access to forest resources, and interventions of this kind are increasingly becoming an obligation as part of livelihood safeguard policies introduced by the Malagasy government under pressure from the World Bank. However, as land tenure in most of rural Madagascar is unsecured (*de jure*), and as the state remains the owner of natural forests and forest clearing is illegal, the PES initiatives have been designed to confer benefits (in kind rewards, direct payments) at the 'community level', rather than at the 'household level'. The aspiration is that the resulting community projects will have a trickle down to the individual household level, and that employment opportunities will arise in forest management. Three examples of early progress on Payments for Ecosystem Services in Madagascar's forests are:

- **MENABE (Western Dry Forest)**: In the Menabe Forests of western Madagascar the Durrell Wildlife Conservation Trust has established an 'Inter-Village Competition' based on participatory ecological monitoring (PEM). Each village on the periphery of the protected area has an area of forest under community management, monthly forest surveys are carried out jointly by technicians and community members. Communities gaining points for the presence of positive indicators of biodiversity (rare species, abundance of key species), and lose points for evidence of hunting, selective logging and forest clearance. Villages with higher scores win funds to allocate for the purchase of goods/infrastructure for the community benefit. Preliminary findings¹⁶ suggest that the initiative is having a positive impact on conservation in the Menabe. However this seems to be more due to the regular presence of NGO staff, and the monthly patrols acting as a deterrent to hunting, clearing and logging, and that this 'policing' is more important in influencing individual's behaviour than the rewards generated at the community level through the competitions.
- **CAZ (Tropical Rainforest)**: In the Ankeniheny to Zahamena rainforest corridor (CAZ) in the east of Madagascar, Conservation International and its partners have established 'Conservation Agreements'. These are broadly based on the model of community forest management, which permit certain sustainable uses of the forest, with monetary payments available to undertake additional activities such as regular patrolling of the forest. Early indications¹⁷ are that the conservation agreements are having a positive impact on conservation targets, but that there remain challenges in making them fully operational and avoiding their causing social conflicts (such as competition for salaried patrolling work).

¹⁶ Source: Interview with DWCT Staff Member, citing a forthcoming doctoral thesis, Antananarivo, July 2009.

¹⁷ Source: Interview with CI Staff Member, Antananarivo, July 2009.

- **MAKIRA (TROPICAL RAINFOREST):** The Makira Protected Area is being developed by the Wildlife Conservation Society. Makira is one of Madagascar's five REDD Pilot Projects and already in project documentation indicates that 50% of the value of REDD Carbon Credits will be destined towards 'community activities' to act as a form of livelihood alternative to unsustainable uses of the forest¹⁸.

Sustainable Production Forests 'Koloala' and National Forest Zoning

National forest policy is of course not only about forest conservation, there is also an agenda to promote sustainable forest management for production. The vast majority of the Malagasy population, including urban dwellers, rely on forest resources to provide housing and fuel (wood and charcoal). For this reason sustainable forest management zones have been established as part of a broad national forest zoning programme. One of the five types of zones established in the most recent national forest zoning exercise¹⁹ is for timber and fuel production. Known as 'Koloala', 11 production sites in the eastern and western regions of Madagascar have been established with USAID support (Jariala, 2008, Green Synergy, 2009a), a further series of sites have been identified for future implementation across the country. These sites are destined for the sustainable production of wood products, and are typically based on community management of forest exploitation.

Efforts are also being made to address the impacts of charcoal production for urban fuel needs on natural habitats. This has been a particular challenge in dry areas with limited forest plantations such as Tulear, Fort Dauphin, Diego Suarez and Mahajunga, where respectively the WWF, JARIALA, GTZ and the French Cooperation have intervened.



¹⁸ Green Synergy, 2009a.

¹⁹ The five zone categories are Protection Zones (ZPT); Sustainable Forest Management Zones (ZAF 'koloala'); Native Habitat Restoration Zones (ZRT); Native or Exotic Reforestation Zones (ZRB) and Agro Forestry Pastoral Zones (ZASP).

REDD Emerges as a Sustainable Finance Strategy for Forests

All of these initiatives (NPAs, CFM, PES, KOLOALA etc) cost money to implement, and Madagascar has considered the challenging issue of sustainable financing of its now huge protected areas system of 5,584,570 hectares (SAPM). Leaders of the conservation movement now see forest carbon finance; with its longer timescales than the classic 1-3-5 year project based funding, to be a major part of a sustainable financing solution for SAPM²⁰. While nobody seems to be under any illusions that REDD and other forms of payments for Carbon and Biodiversity will pay for all the costs of conservation, it is emerging in Madagascar as a core part of national conservation strategies. Indeed Madagascar National Parks, the body which manages the older generation of strict protected areas is also investigating the possibility of accessing REDD funds through extensions to its parks²¹, as its dependency on outside subsidy (from the world bank and others) is coming to an end, and it is facing a significant downsizing later in 2009).

'Community Forest Management' will likely be at the Core of REDD

However, at the most basic level, one of the building blocks for accessing REDD type funding, be it for protected areas, sustainable production zones, community forests or plantations, is based on community forest management which does not provide secure tenure of forests for rural communities.

Evidence gathered by many scholars suggests that very few of the community committees or associations (COBAs/VOIs), to whom the management has been transferred, are fully operational, nor do most of them have adequate support for



A community meet to discuss the transfer of forest management through 'GCF' to their association, Bekiria-Ifotaka, Southern Madagascar (PHCF/WWF REDD Pilot).

adopting alternative activities to forest exploitation and clearing²².

There remain huge challenges to take the more than five hundred community forestry associations across Madagascar to the stage where they are capable and desirous of running autonomously with good standards of institutional governance as well as being economically viable. Furthermore it remains to be seen how the ethical and human rights issues for forest dependent peoples will be addressed, and how an effective conservation and forest product supply system will be structured.

²⁰ Minutes of CT-REDD; Presentation made at Madagascar Side Event at Poznan 2008; Interview with CI Staff Member, Antananarivo, July 2009; Carrat & Loyer, 2003.

²¹ Green Synergy, 2009a.

²² See : Hockley & Andriamaravololona 2007; Casse, 2007; Montagne et al 2007.

Table I: Forest Management Categories in Madagascar 2009.

(Information derived from: Green Synergy 2009a (i); REBIOMA 2009(ii); Jariala, 2009 (iii) MEFT et al 2009 (iv)).

Type of Management Regime	Area (ha)	% Forest
I <u>Classic Protected Areas</u> Managed by Madagascar National Parks (MNP) or declared prior to 2003 and managed by MEF (IUCN Categories I, II, IV): National Parks, Integral Nature Reserves, Special Reserves. (2003 area + extensions)(i/ii).	1,787,961	18.99
II <u>New Protected Areas</u> With temporary protection status and under various management regimes, (IUCN Categories III, V, VI) (Includes some of the areas under Community Forest Management using GCF and GELOSE policies): Natural Monuments, Protected Harmonious Landscapes, Natural Resource Reserves. (i/ii).	3,796,609	40.33
III <u>Total Protected Areas (I+II)</u>	5,584,570	59.32
IV <u>'Koloala' : Sustainable Production Forests</u> (Includes some of the areas under Community Forest Management using GCF and GELOSE policies) (iii).	803,625	8.53
V <u>Other Forests</u> (Includes some of the areas under Community Forest Management using GCF and GELOSE policies as well as areas destined to become 'Koloala' production forests) (VI-(III+IV)).	3,025,023	32.13
VI <u>Total Forest Area (2005)</u> (iv).	9,413,218	100

B: Where is Madagascar with REDD at the National Level?

Madagascar has been prominent in efforts to move forward with the REDD agenda at the international level. The fact that there are actually 5 REDD Pilot Project with on the ground operations has led to its citation as a model example in presentations at many international conferences²³ (Blaser, 2006; Loyer 2008; Aquino, 2008a,c; FCPF, 2008a; Holmes, 2008; Rakotoarijaona, 2008; GoM, 2008b; GoM, 2009; CCTV, 2009). This suggests that Madagascar is among the most advanced country in the Africa region, indeed in the recent review of 'Readiness for REDD' (Johns & Johnson, 2009) the only two pilot REDD projects in the Africa Region shown by the study were in Madagascar (CAZ & Makira). Significantly, in 2008 the Makira Project signed an agreement with the government of Madagascar to sell carbon credits until 2033 (WCS, 2008) which received a great deal of media attention.

At the national level, REDD is being increasingly seen by the conservation movement as an important part of the sustainable financing strategy for conservation, particularly for the management of protected areas, this thinking emerged into the public domain in 2003 at the same time as the 'Durban Vision' was declared (Carratt & Loyer 2003). Environmental issues, increasing protected areas and minimising deforestation also feature prominently in national and regional development policies (MAP, PDR's)²⁴.

From Masoala to Makira : Conceiving REDD in Madagascar

Early discussions on the issue of linking carbon finance to avoided deforestation in Madagascar can be traced back to a paper in the journal *Science* in 2000. This paper considered broad economic perspectives of Masoala National Park (Kremen et al. 2000). Subsequently, a series of consultants reports starting in 2001 began considering technical issues and practicalities, with an evaluation of the carbon content of the eastern rainforests (Rarivoarivelomanana, 2001). Studies of the Makira forest (in the north east and adjacent to Masoala) and its carbon sequestration potential were then conducted by a team of PAGE²⁵ consultants supported by USAID (Meyers & O'Berner, 2001).

Currently there are five REDD Pilot Projects active in Madagascar (see Section D on page 22 for details on each of these) and at least six other REDD projects are under development. All of these projects are being developed by International NGOs or National NGO's closely allied to them. The 5 operational pilot projects cover a total of 16 sites and an area of 1,762,400 Ha across four of Madagascar's five major habitat types. It has been estimated that their carbon offset potential over the next 30 years is in the order of 40-45MT, although an estimated 17MT of this is not currently being prepared for sale as it

²³ International Meetings where Madagascar's Progress on REDD has been showcased: Bad Blumau, Austria - REDD Technical Workshop; Tokyo UNFCCC REDD Technical Workshop; Poznan, Poland COP14 Side Event; Costa Rica FCPF presentation; Paris FCPF Meeting; Lima Peru, Translinks Conference; Manaus, Brazil South South REDD Exchange Presentation; Bonn Germany TV Interview at COP14 Negotiations).

²⁴ MAP – (Madagasikara Am'Perinasa) Madagascar Action Plan (The Nation Development Strategy for 2007-2012. PDR's – Plans de Développement Régionale (Regional Development Plans).

²⁵ PAGE – Programme d'Appui a la Gestion de l'Environnement – Environmental Management Support Programme was implemented by the US based consultancy firm International Resources Group (IRG) as part of USAID's support to the second phase of the National Environmental Action Plan (PE2).

forms part of the WWF/Good Planet and GTZ/IC projects whose immediate objects is not to generate carbon credits but to develop knowledge and methods (Vaudry pers. comm.; Andriamananoro pers comm.; Green Synergy, 2009a).

Five REDD Pilot Projects

The five established projects vary widely in their goals and activities. Two of them (PHCF & REDD-FORECA) are time bound projects which do not have the immediate intension of selling carbon credits. The other three project are each tied to a single protected area and RED forms only part of the financing strategy for those sites (Makira, CAZ & COFAV). All 5 projects include the development new REDD methodologies, deforestation and carbon monitoring protocols, as well as capacity building for REDD. Many of the lessons which will be learnt from these projects and their constituent studies are expected to be used elsewhere in the tropics. Indeed the project promoters recognise that the significant investments that they are making are aimed beyond single site projects, and consider them to be 'loss leaders', or necessary investments to move the REDD experience forward.

Engaging with Forest Carbon Partnership Facility (FCPF)

In 2008 a Madagascar REDD technical committee (known both as 'CT-REDD' and 'REDD Task Force') was established, and is charged with coordinating efforts at the national level to develop a REDD Readiness Plan (R-PLAN). Madagascar was at that time part of the first group of countries to formally enter into the World Bank Forest Carbon Partnership Facility (FCPF) in July 2008 (Aquino, 2008). What was known as the R-Plan, has recently been rebranded as the REDD Readiness Preparation Proposal (R-PP) (FCPF, 2009).

Madagascar submitted a REDD Readiness Project Identification Note (R-PIN) to the FCPF in March 2008 (GoM, 2008a), this was revised the following April and reviewed in June and approved by the FCPF Participants Committee in July 2008 (FCPF, 2008a,b), allowing Madagascar to proceed to the next stage and receive funds through the preparation mechanism²⁶. The Malagasy REDD Technical Committee (CT-REDD) has since contracted a consultancy firm called Green Synergy to provide technical input, research, supervision to the CT-REDD to support the development of the R-PLAN/R-PP. This document is in preparation, and if approved will facilitate the award of a grant of up to US\$3.6M from the World Bank to facilitate Madagascar's preparation for REDD.

The focal point for climate change is within the Ministry of Environment and Forests (MEF) held within its Directorate for the Valorisation of Natural Resources (DVRN). A strong delegation from Madagascar participated in the COPI4 of the UNFCCC in Poznan in 2008, even hosting a side event (GoM, 2008b). A smaller delegation also took part in negotiations in Bonn (June 2009). Most recently the consultants to the CT-REDD have completed a review report as background to the Readiness Plan, this is a key document to understanding progress on REDD in Madagascar and its context (see : Green Synergy, 2009a). Some of

²⁶ Currently due to the unconstitutional accession to power of the current Interim Malagasy Government, FCPF funds are allocated directly to the state, but FCPF work on Madagascar continues.

the issues under consideration by the individual REDD Pilot Projects and by the Technical Committee (CT-REDD) are:

The Definition of 'Forest' – Madagascar has many forest types ranging from tropical rainforest along the eastern side of the island, to spiny thicket in the south, dry deciduous forests in the west, and montane and littoral forests in various parts of the island. The current definition adopted by the Climate Change Focal Point (PF-CC) for Madagascar excludes many of the dry habitats. These areas are home to many unique species found nowhere else on earth, and to Malagasy communities with some of the toughest living conditions (i.e. perceived by some to be in most need of REDD funds), they also have the highest rates of deforestation and are notoriously difficult to accurately detect using remote sensing (Scales, 2008, Ferguson et al, forthcoming). Despite their lower carbon content they present significant potential to generate Carbon Credits through REDD. The debate is partly considering how different forest definitions can be established and recognised to include the range of extant forest types in an eventual REDD mechanism.

Establishing baselines of forest cover and deforestation monitoring methods : The challenge that the diversity of forest habitat types presents in terms of establishing a 'forest definition' is linked to this issue of establishing baselines of forest cover and deciding on methods for monitoring change. The CT-REDD is currently developing what they have termed a '*nested approach*' where both project sites and the national level are integrated in the monitoring systems (Rakotoarijaona, 2008).



Malagasy Delegation, Forest Carbon Preparation Fund Meeting (Source FCPF Website).

A Critique of Madagascar's FCPF R-PIN

An analysis was carried out by WRI of the REDD-Project Identification Note (R-PIN) submitted by the Malagasy Government to the FCPF in 2008, in order to access World Bank FCPF funds to support the preparation of a country REDD strategy. The report considers governance issues raised by the contents of the document. The most significant issues/challenges emerging are:

1. *That part of state law is in conflict with culture and traditional values, and that many laws are outdated and difficult to apply.*
2. *That communities and households do not have legally recognised secure tenure of forests – and that this is a blockage to REDD, but that a national land reform programme is underway (PNF).*
3. *That 'Carbon Rights' need to be clarified before REDD can work.*
4. *That few indigenous communities or true forest dwellers exist in Madagascar.*
5. *That forest change monitoring is largely ad hoc, donor driven and that national capacity building is much needed.*
6. *That alternative livelihood activities are inadequately discussed and that transparent, equitable and viable systems of benefit sharing need to be established.*
7. *That law enforcement of forest laws was ignored by the R-PIN.*

(Adapted from WRI, 2009:15).

In regard to the points made by WRI in the box above it is important to note two major concerns about the respect of the rights of indigenous peoples:

1. **That the National Land Tenure Reform Programme (PNF) has not been applied to forests, these are considered state property in Madagascar.** It is currently unclear if there is any intention to reform tenure of forests, beyond the current situation where community forest management contracts allow the time bound transfer of use rights and management costs – but do not confer either private or collective ownership. TAMS (page 32) has valuable experience establishing land certificates which will better inform this debate – but the tenure report was unavailable to the author.
2. **That the Madagascar R-PIN seems to play down the 'Indigenous' and the 'Forest Dwelling Peoples' as almost being 'non-issues' for most of Madagascar.** The fact that Madagascar's different ethnic groups typically identify themselves as both being distinct groups and as being Malagasy has led to a situation where they are not formally being considered to be *indigenous* (a notable exception being the *Mikea* of the south-west). However, it could be argued that the self organisation and governance that exists through clan hierarchies and customary tenure among many of Madagascar's ethnicities is adequate to 'merit' such classification. Furthermore, unless people must live in or under a tree to be defined as truly '*forest dwelling*', Madagascar has more forest dwellers people than the R-PIN would like to make out (see GoM, 2008). In order to address this issue properly it is important that careful consideration is given to the application of the UN Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007), ILO Convention 169 (ILO, 1989) and World Bank Operational Directives on Indigenous Peoples (for consideration of these issues see also Angelson et al 2009:25-28 & 91-100; Lawlor & Huberman, 2009; Rai 2009, Peskett et al., 2008, Griffiths, 2008).

C: Deforestation and its Monitoring in Madagascar?

Distribution of Natural Forest Habitats: Madagascar's Forest is often placed into one of four broad categories: Dry Forest, Spiny Forest, Humid Forest & Mangrove. Although there are often complex spatial patterns for each of these habitats (and great heterogeneity within each class), a generalisation is broadly accepted where habitats correspond to the broad bioclimatic conditions. Humid forests dominate in a band along the east coast, spiny forests across the south and south west, dry forests through the west of the island and on the northern tip, and with mangroves being found in many coastal areas.

Evolution of Habitat Classification Systems: A range of systems for classifying and mapping the forests of Madagascar has existed since the advent of modern cartography. These systems have become increasingly sophisticated since the combination of aerial photography (Humbert & Cours Darne (1965), LANDSAT satellite images (Faramalala, 1988) and geological characteristics (Du Puy & Moat 1996) with on the ground botanical and forest cover surveys. Most recently, VEGMAD, a collaborative project of RBG Kew, Missouri Botanical Gardens and Conservation International Madagascar carried out a detailed mapping and ground-truthing exercise in order to improve knowledge on habitat change and ability to monitor it. The Madagascar Vegetation Mapping Project (VEGMAD) published a new online vegetation atlas for Madagascar which adopts 11 forest categories (Moat & Smith 2007). Table 2 on page 20 presents recent deforestation rates for each of these habitats.

Deforestation Rates and the Potential for REDD in Madagascar: Madagascar's status as a 'Biodiversity Hotspot' is in part due to the significance of the threat posed by high rates of deforestation to the endemic biodiversity. Although misleading narratives of mankind having cleared around 90% of Madagascar's natural forest still pervade much of academia and the media up to present, the notion that Madagascar was once all forested have been abandoned. Nonetheless the national rate of deforestation in the period since the introduction of remote sensing is still significant. Harper et al. (2007) estimate that between 1950 and 1970 there was a rate of 0.3% p.a., accelerating to 1.7% p.a. between 1970 and 1990 (the 'socialist' era) and slowing on the advent of modern day conservation between 1990-2000 to 0.9% p.a.. More recent estimates by MEFT et al. (2009) of the latter period suggests a slightly lower rate of 0.83% p.a. (1990-2000) and indicate a deforestation rate of 0.53% p.a. for the most recent period analysed (2000-2005).

This relatively high rate of deforestation, combined with a low level of forest cover (15.88%)²⁷ have led to Madagascar being identified as a high potential country for both REDD and CDM Reforestation Credits (Westholm et al. 2009:78).

²⁷ MEFT et al. 2009 figure for 2005 Forest Cover; Andriambolantsoa et al 2007 figure for land area of Madagascar.

Recently, proposals to establish a 'REDD+' regime have entered the international limelight. These propose a system to add biodiversity and other values on top of the avoiding deforestation and degradation criteria to a future UNFCCC mechanism for carbon emissions offsetting based on forests²⁸. These negotiations means a great deal of potential for Madagascar to generate 'added value' REDD credits as the sort of criteria proposed (endemic species with highly restricted ranges, Critically Endangered Species, Local Community Participation) abound in Madagascar. These proposals have been lent support by the Marburg Declaration (ATBC, 2009: Paragraph 10), as well as efforts under the Communities, Climate and Biodiversity Alliance (CCBA) to establish voluntary standards for 'REDD+' style offsets (CCBA, 2008). They currently form part of the negotiation document for the COP15 of the UNFCCC to be held in Copenhagen in December 2009.

Patterns of Deforestation and Drivers (Recent Studies): Table 3 below presents recent deforestation rates across each of the 22 administrative regions of Madagascar, on examining the figures it is clear that both the distribution of forests and the rates of deforestation vary quite significantly between regions. 7 of the 22 regions have less than 100,000ha of forest – and for several the resulting wood scarcity has led to annual deforestation rates of up to 6.66% for the most recent period of analysis (2000-2005). Of the remaining 15 regions 8 of them have rates under 0.5% for this same period. The highest rates of deforestation are in the three regions of the southern spiny forest (Anosy 1.02%, Androy 0.66%, Atsimo-Andrefana 0.98%), two dry forest regions (Menabe (west) 0.6%, Diana (north) 0.52%), and two of the eastern rainforest regions (Atsimo-Antsinanana 0.54%, Antsinanana 0.56%).

The major drivers of deforestation in Madagascar are slash and burn agriculture (both for subsistence crops and for cash crops depending on the region), as well as the production of wood products (particularly charcoal and construction materials for urban markets). Several of the dry regions have difficulty in mitigating the clearance of natural forests, due to the



low levels of plantation forests which are available. Bertrand & Sourdat (1998) present a very detailed work on deforestation in Madagascar and its large literature; it is not my objective to précis all the work on deforestation here.

²⁸ known as: REDD+, GDM (Green Development Mechanism) & PINC (Proactive Investment in Natural Capital).

Table 2 : Deforestation Rates in Madagascar by Habitat Type (MEFT et al., 2009), using an variation on the 'II Category Habitat Classification System' of Moat & Smith (2007)²⁹.

Type of Vegetation	Deforestation Rate (% per year)	
	1990-2000	2000-2005
Mangrove	0.03	0.01
Western Dry Forest/Thicket	0.40	0.40
Western Humid Forest	0.00	0.00
Western Dry Forest	0.13	0.51
Degraded South Western Spiny Forest	0.71	0.60
South Western Dry Spiny Forest/Thicket	0.26	1.09
Eastern Humid Forest	0.20	0.23
Littoral Forest	0.08	0.16
Degraded Humid Forest	2.77	0.80
South Western Coastal Bushland	1.49	1.77
Sub-humid Western Forest	0.12	0.02
National Deforestation Rate	0.83	0.53

Table 3 : Deforestation in Madagascar across 22 Administrative Regions (Andriambolantsoa et al., 2007).

Région	base 1990 (hectares)	lost 1990-2000 (hectares)	per year %	base 2000 (hectares)	lost 2000-2005 (hectares)	per year %
Sava	770 435	23 815	0,31	787 733	4 692	0,12
Diana	643 135	40 014	0,62	602 171	15 675	0,52
Itasy	262	196	7,49	66	22	6,66
Analamanga	51 078	8 571	1,68	47 577	2 481	1,04
Vakinankaratra	36 771	10 012	2,72	14 228	2 910	4,09
Bongolava	8 578	0	0,00	8 584	22	0,05
Sofia	717 784	74 898	1,04	676 479	10 110	0,30
Boeny	454 437	41 235	0,91	413 665	8 366	0,40
Betsiboka	69 785	3 111	0,45	66 156	970	0,29
Melaky	569 631	12 784	0,22	542 116	5 410	0,20
Alaotra Mangoro	544 502	52 720	0,97	471 418	8 669	0,37
Atsinanana	381 838	43 049	1,13	326 970	9 216	0,56
Analanjirifo	571 441	33 667	0,59	599 477	4 199	0,14
Amoron'i Mania	61 705	17 070	2,77	40 688	3 029	1,49
Haute Matsiatra	76 714	17 045	2,22	57 977	213	0,07
Vatovavy Fitovinany	195 398	29 273	1,50	153 232	1 839	0,24
Atsimo Atsinanana	288 279	28 963	1,00	244 010	6 638	0,54
Ihorombe	139 930	3 809	0,27	132 056	1 592	0,24
Menabe	956 927	49 274	0,51	901 514	26 867	0,60
Atsimo Andrefana	2 032 104	241 895	1,19	1 790 209	87 415	0,98
Androy	499 835	31 042	0,62	469 015	15 453	0,66
Anosy	516 955	24 258	0,47	499 999	25 416	1,02
National	9 587 525	786 700	0,82	8 845 339	241 204	0,55

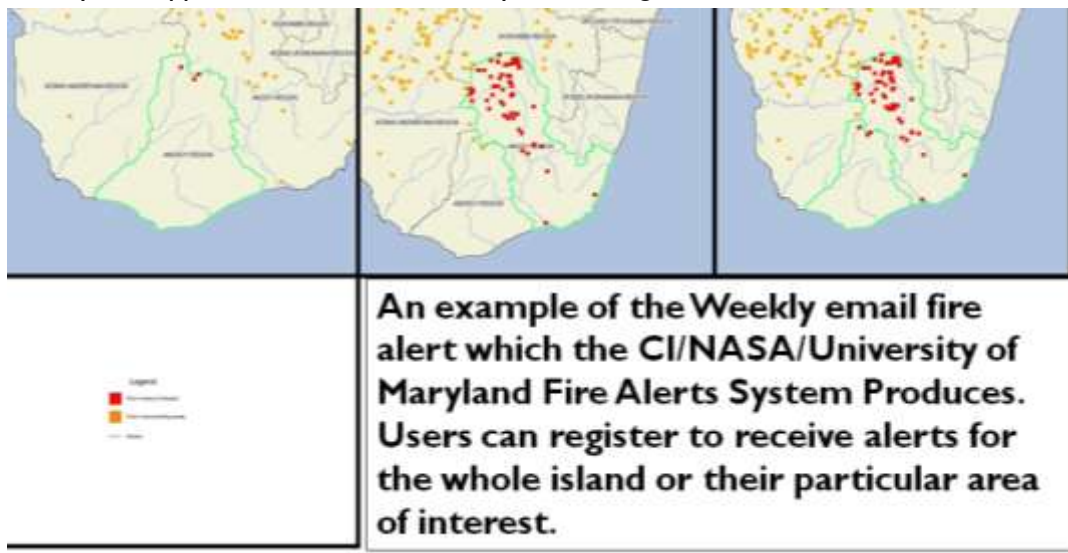
²⁹ The final VEGMAD atlas presents a different variation of this classification (where the 'western dry forest' and 'western dry forest/thicket' categories are combined and an additional category of 'Tapia Forests' (referring to a habitat type in the highlands around Ambositra) is included.



Deforestation Monitoring Systems: The sections above give an overview of the state of knowledge about deforestation in Madagascar, and in terms of the availability of data with which to start accessing REDD funds the situation is better than many other REDD candidate countries (Herold, 2009:21). However most deforestation studies in Madagascar have been driven by international donors, have been carried out on an *ad hoc* basis, and are often reliant on external financial and technical support. The agencies of the Malagasy state which are responsible for these functions, namely the National Environment Office (ONE) and the Ministry of Environment and Forests (MEF) are widely perceived to lack both capacity and resources to carry out the regular sort of monitoring which is anticipated to be needed for REDD (ibid:49). If Madagascar is to access REDD, it is suggested that there is a need for significant support for human resources, access to communications and finance in order to establish an 'in house' monitoring system.

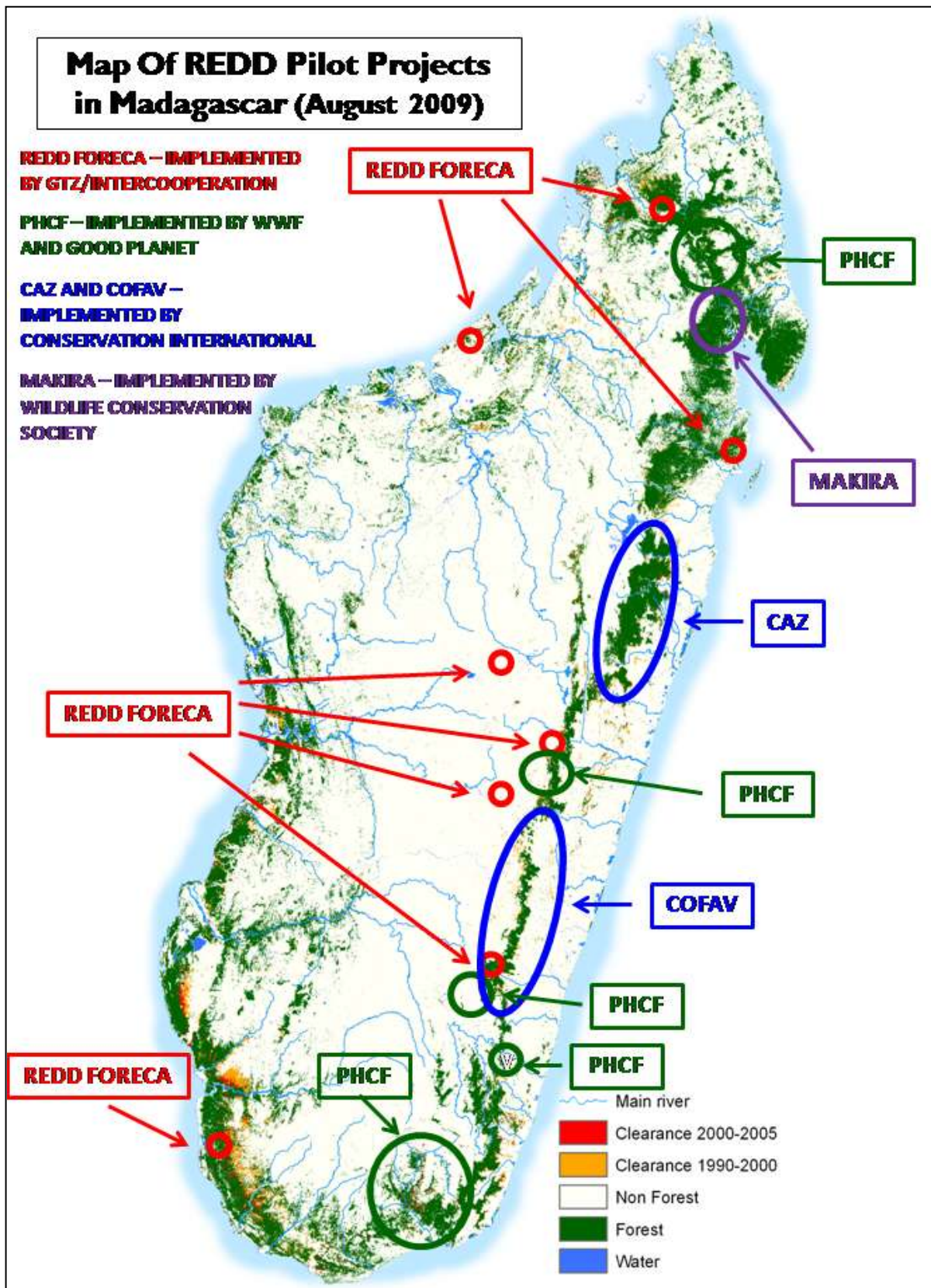
An Innovative System for Monitoring (Forest) Fires by Satellite

An interesting tool which has been developed for Madagascar concerns the monitoring of fires. The University of Maryland, NASA and Conservation International have teamed up to establish a satellite based fire monitoring system. Members of the public and conservation and forest practitioners can subscribe to receive weekly fire alerts in either their region of interest or for the whole island. This system uses a MODIS satellite will be very useful in detecting fires from slash and burn agriculture in forest areas, and as such could make the role of the state in policing unwanted deforestation under an eventual REDD mechanism much easier. Caution is also urged however: ***the field agents of the forest administration are notoriously oppressive and prone to accepting bribes or issuing illegal permits and frequently turn a blind eye to illegal deforestation by 'delinquent' farmers for relatively small payments.*** These 'fire alerts' in the wrong hands, and without proper follow up and safeguards for their good use and to ensure the wellbeing of farmers, could serve to encourage and facilitate more bribery and oppression of rural farmers by the field agents of the forest service.



Source of map: <http://firealerts.conservation.org>

D: REDD Pilot Projects in Madagascar



Base map taken from (MEFT, USAID & CI, 2009).

I Corridor Ankeniheny – Zahamena (CAZ)

CAZ is a flagship project of Conservation International. It consists of a new protected area of 425,000 hectares in the eastern rainforest, connecting three older protected areas (Zahamena and Mantadia National Parks and Mangerivola Special Reserve) and extending some 20km further south from Mantadia. Within the corridor the 'CDM' forest carbon project 'TAMS' is restoring habitat and promoting sustainable farming and plantations. The area has a core conservation zone of approximately 80,000ha, and the remainder is a buffer zone where certain community uses are allowed, these buffer communities are/will be supported in sustainable livelihood activities. The CAZ area was granted temporary protection status in 2005 and covers 425,000 hectares of forest, across 20 communes and 3 regions. Many of the 107 individual forests management units of the project area are under community forest management (GCF/GELOSE) with small numbers of private holdings and conservation contracts making up the remainder. CI is using a system of conservation agreements as part of the project, to facilitate local income generation through community agreement to undertake additional activities (such as patrolling or habitat restoration/planting).

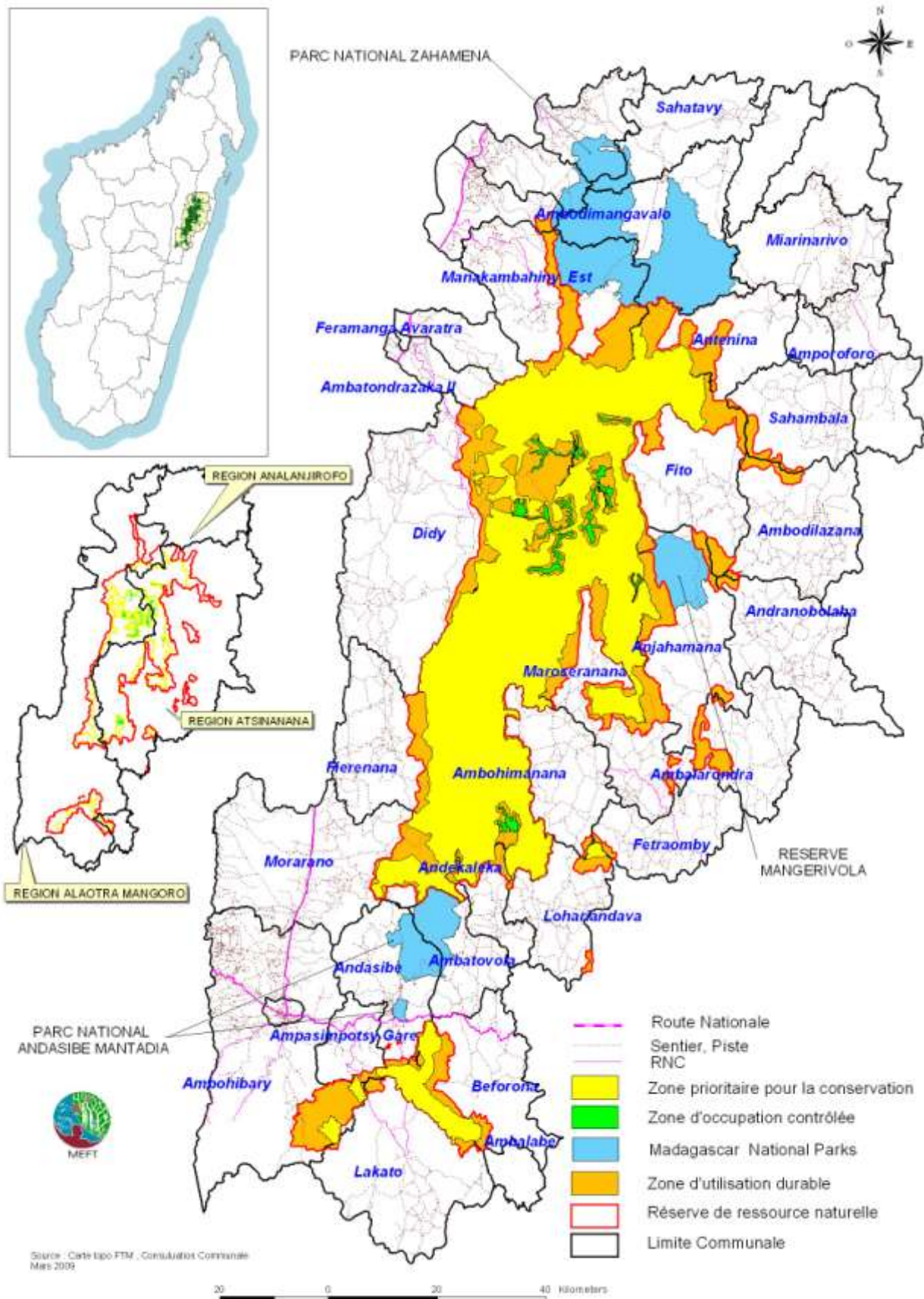
The project has been implemented with funding from the Global Environment Facility (GEF), USAID and Conservation International itself. The REDD element of CAZ which has an estimated budget of around \$1,200,000 will be funded from CI and the World Bank (IDA Funds). The first payments for the TAMS element of the project were due to be disbursed by the Biocarbon Fund in 2008 (\$100,000) and 2009 (\$200,000), but have not yet been received despite suggestions to the contrary (Aquino, 2008c, Johns & Johnson 2009). The emissions reductions contracted with the Biocarbon Fund (0.43MT CO₂) are considered by CI to be cautious, and additional reductions could be marketed subsequently

CAZ is the site where a detailed methodology is being developed to monitor emissions reductions from Mosaic Deforestation (Pedroni, 2008). Winrock International are developing this methodology for the project, which estimates that up to 10,000,000 tons of CO₂ emissions will be avoided over a 30 year crediting period, with a target of 4,000,000 tons of CO₂ emissions reductions anticipated by 2017. These emissions reductions will be proposed for the voluntary market, and the Project Design Document (PDD) which is under development will probably seek accreditation under the Climate, Community & Biodiversity Alliance Standard (CCBS). The protected area management plan is complete (CI, 2009) and Environmental and Social Studies are in preparation.



Technical studies of the CAZ forests have identified a carbon storage capacity of up to 549T CO₂/ha for natural forest. Lower capacity exists on deforested areas (10.2T CO₂/ha) and restored forest (TAMS: 148.4T CO₂/ha). The historic deforestation rate is cited as 0.25% p.a. and the project target is to reduce this to 0.07%. Monitoring incorporates ground surveys and remote sensing (Landsat 5,7 – IDDRISI), with forest cover to be monitored every 5 years.

Corridor Ankeniheny – Zahamena Natural Resource Reserve (CI, 2009).

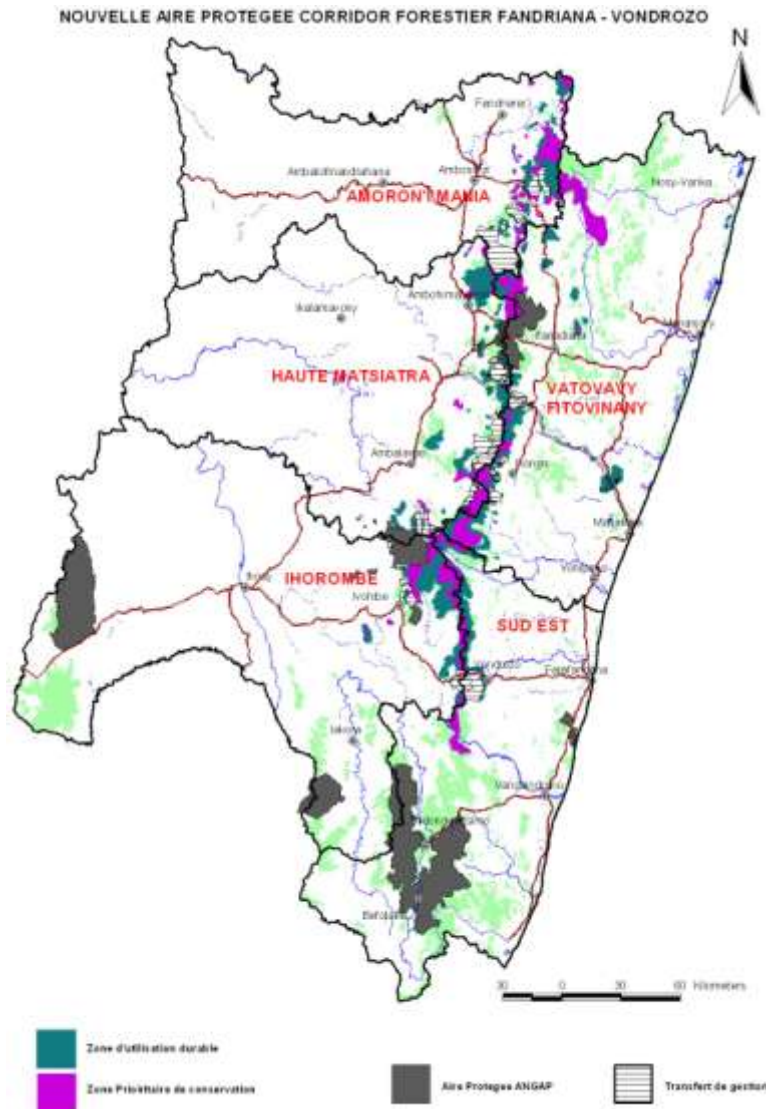


2 Corridor Fandriana - Vondrozo (COFAV)

COFAV is also a flagship project of Conservation International, consisting of a new protected area in the eastern rainforest in the central and southern parts of the east coast of Madagascar. It connects classic protected areas managed by Madagascar national Parks at Ranomafana, Andringitra, Ivohibe almost as far as Midongy-Sud. Covering an area of 240,000ha of forests, across five of Madagascar's 22 regions the project consists of a series of community managed forests, protection zones and sustainable use zones.

The area gained temporary protection status in 2005 and hopes to attain permanent protection status during 2009.

The methodological aspects of COFAV are very similar to that of CAZ, with monitoring systems and methodologies being developed by Winrock International. CI anticipates up to 9,000,000 tons of CO₂ emissions reductions across a 30 year period. The historic deforestation rate is cited as 0.25% p.a. and the project target is to reduce this to 0.07%. Monitoring incorporates ground surveys and remote sensing (Landsat 5,7 – IDDRISI), with forest cover to be monitored every 5 years.



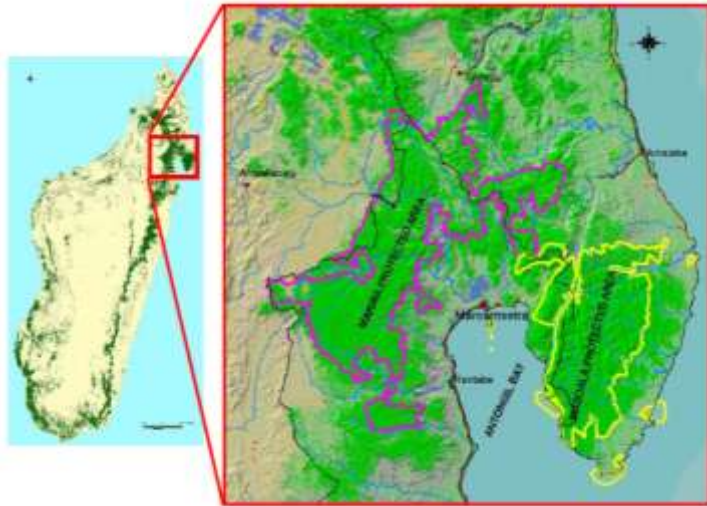
Source: CI, 2007.

The Malagasy authorities requested that Conservation International take the lead in the initial marketing of carbon credits from COFAV, this will be through the voluntary market, with the Climate, Community & Biodiversity Alliance Standard (CCBS) likely to be the preference. Work on REDD/Carbon aspects of the COFAV project began in 2008, and advances include the company DELL signing a 5 year contract to support conservation activities for this project.

Both the CAZ and the COFAV have established management structures where the Malagasy Government is the responsible agency and the contracting body for carbon finance. This is different to the NGO contracted agreement established for Makira (see over).

3. Makira

Makira is arguably the most advanced of the REDD Pilot projects in Madagascar. The project is led by the Wildlife Conservation Society (WCS), with significant support from Conservation International (CI). Makira is a large forest area in the north east of the island, adjacent to Masoala National Park and seen as a critical site to assure ecological connectivity between the existing protected areas at Marojejy, Mananara-Nord and Anjanaharibe-Sud. The area gained temporary protection in 2005, and the project currently covers an area of 651,000ha, consisting of 371,000ha of conservation/protected area (IUCN Category II), and a further 280,000ha of forests under community management (Jaozandry, 2007). A population of c900 live within the protected area, with a further 150,000 people across 120 villages living in and depending upon the community forests (buffer zone). A proposed framework for distribution of the revenue is : 50% for the local population; 25% for WCS to Manage Makira; 15% for Forest Administration; 5% for the Marketing the Makira Carbon Company; 2.5% for Verification Costs and 2.5% to operate a 'Foundation' to manage the funds.



Although the region has had 8 classified forests since the colonial era, the current Makira project began in earnest with studies in 2001 (Myers & O'Berne) examining the potential of initiating a carbon sequestration project. In 2003 the WCS signed an agreement with the Government of Madagascar, and Winrock International conducted a feasibility study and began carbon accounting efforts (Martin et al. 2004), methodology mirrors CAZ and COFAV.



Community resource management sites

In 2008 WCS signed an agreement with the Government of Madagascar for an agreement , where the 'Makira Carbon Company' could sell carbon credits from the core protected area. The potential emissions reductions are estimated at 9,200,000 tons of CO₂ in the 30 year credit period (Martin et al 2004). For the first period of the project (2004-07) where emissions reductions have been measured, these are recorded as 320,000 tons of CO₂ (246 hectares of deforestation was reportedly avoided).

The project has received funding from Musicians (Dixie Chicks, Pearl Jam), and is finalising the PDD to seek accreditation through the CCBS to enter the Voluntary Carbon Market (Supported by the Rainforest Alliance/Smartwood). Operating costs are estimated at \$620,000 annually. **Maps from Holmes et al (2008).**

4. REDD-FORECA

REDD-FORECA is a joint initiative of the Swiss NGO Intercooperation (Swiss Foundation for Development and International Cooperation) and the German Technical Cooperation (GTZ, Deutsche Gesellschaft für Technische Zusammenarbeit). The project which runs from 2007 until 2009 is not intended to generate Carbon credits, but to develop knowledge and capacity to support Madagascar to engage with REDD.

Close partners of the project are the GTZ supported Decentralised Natural Resources Management Programme (PGDRN); the Forestry Department of the School of Agronomy in Antananarivo University (ESSA Forests) and the Johann Heinrich von Thünen-Institute, Federal Research Institute for Rural Areas, Hamburg, Germany (vTI). vTI and ESSA Forests each have four doctoral students conducting research work as part of REDD-FORECA and results of this research are eagerly anticipated.

The project has four main activities (REDD FORECA, 2007):

- 1 To develop a REDD methodology for Madagascar using local and national level approaches ('Nested Approach').
- 2 To promote 'REDD engaged forests' policies for protected areas and *kolo ala* through development of policies and systems to allow this.
- 3 To develop information and training materials for use in communities to explain the 'REDD engaged forests' policies.
- 4 To disseminate the findings from REDD-FORECA widely to technical and policy people at the UNFCCC and its technical advisory panels SBSTA.

The project works in 8 sites across Madagascar, where it has piloted carbon inventory, undertaken socio-economic surveys, established regional deforestation baselines and identified community livelihood alternatives to deforestation. The remote sensing is based on a multi-layered approach (Kohl, 2007). The intervention sites represent Tapia Forest, Spiny Thicket and Rainforest (see map on page 22 for localisation).



5. Holistic Forest Conservation Project (PHCF)

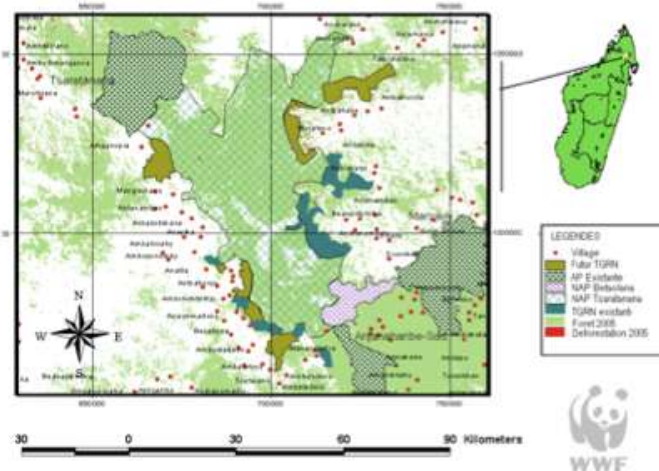
The most recent REDD Pilot Project in Madagascar, starting in 2008 is also the largest, exceeding 500,000ha. The Holistic Forest Conservation Project (PHCF) is led by WWF and Good Planet, with €4.2M funding from Air France. Similarly to REDD-FORECA, PHCF is not intended to sell Carbon Credits – this is because both WWF-Madagascar and Good Planet are ‘withholding judgement’ on the appropriateness of REDD and/or what methods and standards should be established until the lessons from this project are clear. It is likely that on completion of this project, were WWF to proceed with efforts to access Carbon Credits for avoided deforestation that the WWF Green Standard would be used (Reitbergen-McCracken, 2008).

WWF³⁰ lead the aspects of the project which concern the establishment of new protected areas (350,000ha), forest restoration (23,000ha) and Community Forest Management (140,000ha). Many of the project sites have had a WWF presence for several years, and among the sites included for new protected area status are some which were already seeking this status under other funding schemes. The sites where the project operates are in four broad regions:

1. Mandrare Valley, South east (Spiny).
2. Vondrozo/Ivohibe, South East (Humid).
3. Fandriana/Marolambo East Central (Humid).
4. Andapa, NE Madagascar (Humid).



Articulation des activités : cas du site d'Andapa
Transferts de gestion mis en œuvre en périphérie des nouvelles aires protégées



Good Planet leads the aspects of the project concerning the development of methodologies, including testing remote sensing approaches (SPOT & Radar) and ground truthing using leaf area index; Biomass and Soil Organic Carbon inventories & establishing baselines and scenarios using land use & allometric models. Good Planet collaborate with: Université de Marne la Vallée, Centre Nationale de la Recherche Scientifique(CNRS), Institute de Recherche pour le Développement (IRD), SPOT Image and Université d'Antananarivo. (Images/Maps : WWF Madagascar)

³⁰ Vaudry, 2008, personal communication.

E: What other REDD initiatives are under development in Madagascar?

Needless to say, now that REDD is becoming a real opportunity for funding conservation activities, an array of foundations, conservation practitioners, private businessmen, consultants and NGOs are developing a keen interest in the sector. In Madagascar the following activities are understood to be under development:

1. **Tany Meva Foundation** (www.tanymeva.org.mg) – This is a Malagasy Environmental Foundation which has a specific Conservation Carbon project. Tany Meva has established a partnership with the GEF-Small Grants Scheme (Madagascar), to support communities in the south and south west of the island. The two organisations developed an R-PIN proposing the establishment of a REDD project for an area of community managed forests near Ampanihy, in the south of the island. The PIN was submitted to the UNEP/UNRISOE/FFEM project CASCADE-Africa to seek support for the development of a PDD. The forests include sacred forests with ancestral burial grounds of the native Mahafaly people, 19 villages and c8100 inhabitants. The project covers an area of 22,500ha and envisaged an emissions reduction of 610 700 t CO₂e (Tany Meva, 2009). This PIN was submitted with several others without REDD components, and one with a combined REDD and CDM activities (Conservation of the Makirovana-Tsihomanaomby Forest Complex in the Sava Region (north east) the REDD element covered c7000hectares. Neither project with a REDD element was allocated support by CASCADE, but facilitating REDD activities for communities remains an ambition for the Tany Meva - GEF-SGS Alliance.
2. **Missouri Botanical Gardens (MBG)** - MBG have undertaken research and training activities in Madagascar for more than two decades. Since the Durban Vision was announced they have entered increasingly into the promotion of new protected areas. In 2007, following a feasibility study, MBG selected a series of ‘Orphan Conservation Sites³¹’ to establish as New Protected Areas, with funding from sources including The Goldman Foundation, GEF-SGS, CI-CBC . They are currently the NGO establishing up to 11 NPAs across Madagascar – these include Mahabo, Analavelona, Anadabolava. MBG are currently liaising with Ecosystem Restoration Associates and Tany meva to explore the potential of facilitating REDD funding for their field sites.
3. **Fanamby** : Fanamby is a Malagasy National NGO which works in conservation in various sites in western, central and northern Madagascar. They are closely allied to Conservation International, from whom they have receives a significant part of their funding. Fanamby is currently developing a significant project for GEF (project development funds have already been allocated) to advance their protected area work in 5 New Protected Areas (Anzozorobe 52,300ha, Menabe 204,500ha, Bombetka 77,500ha,

³¹ Orphans in the sense that they had been identified for their Conservation Importance during the Durban Vision Prioritisation Exercise, but subsequently had no active partners advancing their establishment as new protected areas.

Daraina 70,000ha, et Andrafiarena/Andavakoera 80,000ha). The project envisages its portfolio activities to access carbon finance including REDD. A tender for a team of Project Development Consultants was advertised at the end of July 2009.

4. **Man and the Environment (MATE)** : MATE is a conservation and development NGO established in 1993. Their work in two sites (Vohimana and Vohibola) includes carbon activities (avoided emissions and habitat restoration), as well as a range of sustainable forest management activities (essential oils, charcoal and construction wood production from invasive species, tourism). One of their sites, Vohimana, is to the south of Mantadia National Park, and includes restoration and reforestation activities in the same vein as the CI led TAMS project (see following section).
5. **Durrell Wildlife Conservation Trust (DWCT)** : DWCT who have had a country programme in Madagascar since the early 1990's currently work on species based conservation and the establishment of new protected areas in 7 sites across Madagascar (Menabe, Aloatra, Ankarafantsika, Baly Bay, Tsimembo/Antsalava, Manombo and Nosy Volo). They are renowned in conservation circles in Madagascar as pioneers in aspects of endangered species recovery, community engagement, participatory ecological monitoring and conservation payments. DWCT are currently at the early stages of exploring the potential of helping facilitate REDD finance in their areas of intervention.
6. **Madagascar National Parks (MNP)** – MNP is the organisation in charge of managing the network of 'Classic Protected Areas' across Madagascar. In 2003 a study by Carret and Loyer suggested that accessing carbon finance could form part of a sustainable finance strategy for MNPs management of protected areas (which was at that stage known as ANGAP). All of MNP protected areas, have been established for significant periods (many in colonial times) and already forbid deforestation and most extractive uses, and have almost no resident populations (some parks have 'enclaves' within the park, but not officially designated as park), this potentially poses a challenge on the REDD additionality criteria. If a future REDD mechanism could provide finance for these sorts of protected areas then MNP is well placed to benefit from this. They envisage engaging with REDD opportunities their ongoing examination of the potential for extensions to their current parks and through adopting new protected areas.
7. **Madagascar Foundation for Protected Areas and Biodiversity Conservation:** This foundation was established to provide finance for the whole protected areas system of Madagascar and Biodiversity Conservation. It has been granted substantial endowments from private foundations, multi-lateral and bi-lateral donors and through debt relief. Although the foundation has not distributed information publicly declaring any interest in REDD finance, it may follow such a strategy if the eventual REDD mechanism would permit it to do so (in the same way as Tany Meva has done). This is the reason it has been included in this report.

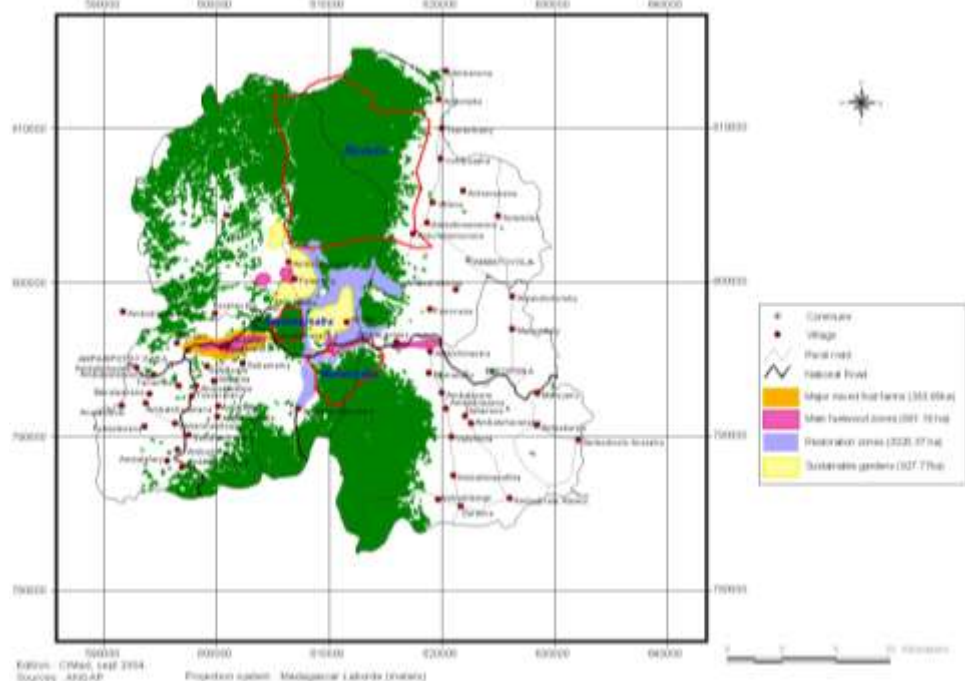
F: Other 'non-REDD' Forest Carbon Projects with Relevance

Madagascar has a plethora of activities related to conservation and climate change underway. This review is not intended to deal with them, (see Green Synergy 2009 for more comprehensive information on Climate Change Policy). Four non-REDD projects have been identified which involve Forest Carbon and grappling with similar issues to REDD and are therefore significant to the debate:

I. TAMS – Tetik'asa Mampody Savoka

TAMS is a project led by Conservation International which has been working in the areas between Mantadia National Park, Analamazoatra and Maromizaha, in the area of Andasibe (c100km east of the capital city of Antananarivo) for over ten years. The TAMS area is part of the broader Ankeniheny-Zahamena Corridor (CAZ) – which is a REDD Pilot Project. TAMS focuses on natural forest restoration (3020 ha) and the promotion of fuelwood plantations (661ha), sustainable gardens (927ha) and mixed fruit farms (333ha). The project is approved under the Clean Development Mechanism (Afforestation Method 4) and is implemented in

partnership with various local NGO's, Government Bodies (and *quangos*) and donors (including the World Bank-Biocarbon Fund, USAID, Tany Meva). Officially for CDM purposes the Malagasy Government



leads the project, but undoubtedly CI plays a crucial facilitation role on the project. The mechanism for disbursement of CDM funds will be through agreements between the government and landholders, for which a detailed tenure study has been conducted³². By 2009 1050hectares had restoration work carried out, and the project envisages carbon sequestration of 113,000tonnes of CO₂ by 2012 and eventually 1,200,000tons of CO₂ over a 30 year crediting period (Green Synergy, 2009a). The project information sheet and other background documents provide more details (Martin et al 2004; TAMS, 2007; Aquino 2008; Pollini 2009; Sullivan 2008).

³² Tenure Study was unavailable to the author during the preparation of this report but will certainly have many insights to inform the debate.

2. CASCADE Africa (Carbon Finance for Agriculture, Sylviculture, Conservation and Action Against Deforestation)

CASCADE is a project of the UNEP, UNRISOE and FFEM, for which aspects of its implementation are carried out by Winrock International. The project launched in Madagascar in September 2008, and has the goal of providing training, advice and mentoring to help projects in Madagascar access Carbon finance. A national training workshop was organised, a call for Project Identification notes (PINs) announced, and a series of projects selected to receive support. Projects submitted address a range of topics from biofuels, forest plantations and intensive agriculture to REDD projects (no REDD projects were selected for support in the end). More information is available on www.cascade-africa.org/

3. WWF/Conservation International –

In 2006 the MacArthur Foundation funded CI and WWF to undertake a project to study the potential impacts of climate change in Madagascar. Studies were conducted both in the field and more technical desk based and modelling work. Subsequently additional studies were commissioned by USAID to synthesise the findings from the WWF/CI work and to combine it with additional information. A National Conference on this issue was held in January 2008, and a report published (Combest-Freidman & Winterbottom 2008).

4. Tany Meva

The Tany Meva Foundation has three Carbon Forestry Projects underway (Green Synergy 2009a):

- **Ankotrofotsy Reforestation Project** (Menabe, western Madagascar – in partnership with Intercooperation and a local association ‘FCC’) : established in 2007, planned to run until 2012 with a goal of reforesting 979 hectares in three fokontanys. The project includes the provision of individual land tenure for areas to be planted. Exotic and native tree species to be used (Eucalyptus, Neem). The project envisages a sequestration of 100,000 tons of CO₂ over a thirty year crediting period – through the Clean Development Mechanism.
- **Antanetikely** (Analamanga Region, nr Antananarivo, in partnership with ONFI)- 500 hectares of reforestation on individually titled plots planned (from 2008). The project will consider accessing Carbon Finance either from Voluntary or CDM sources. Carbon sequestration has not yet been calculated.
- **Project Ala Meva** (Beautiful Forest) – A project of small forest plantations (10-100ha) in dispersed sites in various regions of Madagascar. Not specifically intended to access Carbon Finance, but Tany Meva Plans to undertake Carbon Accounting for these project sites.

G: Conclusion and Issues for Reflection

As we have seen in this chapter there is a plethora of activity around REDD underway in Madagascar, with approaches varying from micro community forest management and restoration projects, and new protected areas co-managed by the state and communities to more strictly managed protected areas. They will all contribute to a better knowledge of the diversity of mechanisms with which society can tackle forest loss while looking after the needs of 'forest people' and other users of forest products.

It is yet to become clear how sub-national REDD projects, of the sort which already exist in Madagascar will fit in to national REDD schemes. Considering that some critics are arguing strongly against this approach, stressing that emission reduction can only be properly accounted for at national level and higher, it will be interesting to see how the role of NGOs in this area will develop in the longer term. This means an emerging issue for concerned scholars to observe and reflect on is around the role of NGOs and private companies in facilitating sub-national REDD initiatives, and forms of 'elite capture' across scales in the new REDD carbon markets. Already some activists have warned of the battalions of 'carbon entrepreneurs' who are at the ready to cash in on the inclusion of avoided deforestation in any future international agreement on mechanisms for carbon emission reductions.

In Madagascar there are certainly matters to be dealt with around the definition of forest as well as the development and mainstreaming of effective deforestation and degradation monitoring mechanisms. Aside from these more technical issues, there remains a series of questions around institutional design and the sharing of revenues which are likely to be generated by REDD for the authorities in Madagascar to consider:

- How will future income from REDD will be dispersed to, and used by community and state actors and their NGO/private sector partners?
- How will 'forest dwellers', 'forest dependent communities' and 'indigenous peoples' be defined, recognised and compensated within the context of a future REDD mechanism?
- How will the interactions between the national land tenure reform programme (PNF) and the massive expansion of protected areas under SAPM evolve?
- How will Madagascar ensure that any deforestation and degradation which is avoided in a given area of the country doesn't experience leakage and impact on other forest resources elsewhere?

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How much carbon is there in the forest? Many of Madagascar's forest types are highly heterogeneous, and will require more research to understand their carbon content. Here – a preliminary assessment in Ifotaka, following a patch of 'hatsake' in the conservation zone.

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I : Abbreviations

- 2CFC – Climate Change Forests and Communities (UEA-CIFOR Research Network).
- ANAE – Association Nationale pour les Actions Environnementale (National Association for Environmental Actions).
- ANGAP – Association Nationale pour la Gestion des Aires Protégées (National Association for the Management of Protected Areas).
- AP – Aire Protégée (Protected Area).
- APC - Aire Protégée Communautaire (Community protected Area).
- APP - Aire Protégée Privée (Private Protected Area).
- CASCADE – UNEP/Winrock International Programme to improve Capacity to Access Carbon Finance.
- CAZ – Corridor Ankeniheny-Zahamena.
- CBNRM – Community Based Natural Resource Management.
- CCBA – Climate Community and Biodiversity Alliance.
- CDM – Clean Development Mechanism.
- CFM – Community Forest Management.
- CFN – Carbon Forestry Network.
- CI – Conservation International.
- COAP – Code des Aires Protegees (Protected Areas Code).
- COBA – Communauté de Base (Basic Local Community).
- COFAV – Corridor Fandriana – Vondrozo.
- COGE – Comite de Gestion (Management Committee).
- COP14 – Conference of the Parties 14 (14th Meeting of the signatories of UNFCCC) (Poznan 2008).
- CT-REDD – Comite Technique REDD (has also known as REDD Task Force).
- DREF – Direction Régionale de l’Environnement et des Forets.
- DVRN – Direction pour la Valorisation des Ressources Naturels (Directorat for the Valorisation of Natural Resources).
- DWCT – Durrell Wildlife Conservation Trust.
- FAPB or FAPBM – Foundation pour les Aires Protégées et la Biodiversité de Madagascar (Madagascar Foundation for Protected Areas and Biodiversity).
- FCPF – Forest Carbon Partnership Facility (World Bank).
- GCF(i) – Gestion Contractualisée des Forets (Contracted Forest Management).
- GCF(ii) – Global Conservation Fund (of Conservation International).
- GEF-SGS – Global Environment Facility – Small Grants Scheme.
- GELOSE – Gestion Locale Sécurisée (Secured Local Management).
- GoM – Government of Madagascar.
- GTZ – Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
- IC – Swiss Foundation for Development and International Cooperation (Intercooperation).
- ICDP – Integrated Conservation and Development Project.
- IRD – Institute de Recherche pour le Développement.
- IRG – International Resources Group.
- JARIALA – Forest Sector Reform Programme (funded by USAID, implemented by IRG).
- MATE – Man and The Environment (also known as l’Homme et l’Environnement).
- MEF – Ministère de l’Environnement et des Forets (Ministry of Environment and Forests)(formerly MEFT, MEEFT, MEEF).
- MNP – Madagascar National Parks.
- MONAT - Monument Naturel (Natural Monument).
- NAP – Nouvelle Aire Protégée (New Protected Area) – Protected Area created after Durban Vision declaration (2003).
- NEAP – National Environmental Action Plan (Phase 1 PE1, Phase 2 PE2, Phase 3 – PE3).
- ONE – Office Nationale pour l’Environnement (National Environment Office).
- ONF - International- Office Nationale des Forets – International.

PDD – Project Development Document (CDM/Carbon Finance Terminology).
PGES – Plan de Gestion Environnementale et Sociale (Environmental and Social Management Plan).
PHCF – Programme Holistique de Conservation des Forets (Holistic Forest Conservation Programme).
PHP - Paysage Harmonieux Protégée (Protected Harmonious Landscape).
PN - Parc National (National Park)
PNAT - Parc Naturel (Natura Park).
PNF – Programme National Foncière (National Land Tenure Reform Programme).
PNUD – Programme des Nations Unis Pour le Développement (UNDP).
REDD – Reduced Emissions from Deforestation and Degradation.
REDD+ - Reduced Emissions from Deforestation and Degradation + Conservation.
RNI - Reserve Naturelle Intégrale (Integral Nature Reserve)
R-PIN – Readiness – Project Information Note (Concerning REDD).
R-Plan – Readiness Plan (Concerning REDD) – now known as R-PP.
R-PP – Readiness – Preparation Proposal (Concerning REDD).
RRN - Reserve de Ressources Naturelles (Natural Resource Reserve).
RS - Reserve Spéciale (Special Reserve).
SAPM – Système des Aires Protégées a Madagascar (Madagascar System of Protected Areas).
SBSTA – Subsidiary Body for Scientific and Technical Advice (Advises UNFCCC).
UNFCCC – United Nations Framework Convention on Climate Change.
USAID – United States Agency for International Development.
VCS – Voluntary Carbon Standard.
VEGMAD - The Madagascar Vegetation Mapping Project.
VOI – *Vondron Olona Ifotany* (Community Association established for GELOSE and GCF(i)).
vTi - Johann Heinrich von Thünen-Institute, Federal Research Institute for Rural Areas, Hamburg, Germany.
WCS – Wildlife Conservation Society.
WWF – World Wildlife Fund.

Annex I: Categories of Protected Areas in Madagascar (SAPM, 2007)

IUCN Category	IUCN Management Objectives	Madagascar's Application of IUCN Management Categories (GoM, 2008c)
I	a) Strict Nature Reserve: Managed mainly for science. b) Wilderness Area : Managed mainly for wilderness values.	Reserve Naturelle Intégrale (RNI) TAHIRIN-JAVABOARY Integral Nature Reserve
II	National Park: Managed mainly for ecosystem protection and recreation.	Parc National (PN) & Parc Naturel (PNAT) VALAN-JAVABOARY National Park & Natural Park
III	Natural Monument : Managed mainly for conservation of specific natural features.	Monument Naturel (MONAT) TAHIRIM-BAKOKA VOAJANAHARY Natural Monument
IV	Habitat/Species Management Area: managed mainly for conservation through management intervention.	Reserve Spéciale (RS) TAHIRIN-JAVABOARY Special Reserve
V	Protected Landscape/Seascape: managed mainly for landscape/seascape conservation and recreation.	Paysage Harmonieux Protégée (PHP) TONTOLO MIRINDRA VOAARO Protected Harmonious Landscape
VI	Managed Resource Protected Area: managed mainly for the sustainable use of natural ecosystems.	Reserve de Ressources Naturelles (RRN) TAHIRIN-KARENA VOAJANAHARY Natural Resource Reserve

Governance Categories of Protected Areas

Four Governance Categories Exist for Madagascar's Protected Areas (SAPM 2006), although at present these are not described in the Protected Areas Code (COAP (GoM, 2008c)). In practice the governance categories are being used in the design of organisations/committees etc for the management of new protected areas. The Categories, (which correspond with the IUCN system) are:

- A] State Management;
- B] Co-management;
- C] Private Management (Aire Protégée Privée (APP));
- D] Community Management (Aire Protégée Communautaire (APC)).



Slash and Burn Agriculture to grow maize and tobacco is essential to the livelihoods of many Antandroy people in southern Madagascar. Their forests are still legally owned by the state and their farming practices are illegal. This fire is from a WWF REDD Pilot Site which has high deforestation rate of 1.68% (2000-2005) (Tranomaro, 2000)