A NEW RESEARCH PROJECT IN CENTRAL MENABE

Scientific Bases for a Participatory Forest Landscape Management

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ABSTRACT

In Madagascar – a biodiversity hotspot of international importance – the villagers depend on the forest first for its soil as a reserve of arable land as well as a shelter and a pasture for the herds, and second for the production of timber, charcoal and other forest products. Most of the currently proposed conservation management systems for forests do not take into consideration villagers' needs, in Madagascar too; indeed degradation and deforestation have continuously occurred in places where the forest is under great pressure.

In targeting the improvement of the livelihood of local populations and the maintenance of "multifunctionality", especially the ecological value of the forest, the present project aims at developing scientific criteria for a sustainable management of forest landscapes in western Madagascar at a regional scale. A detailed inventory of resources and a specific understanding of stakeholder requirements and strategies will allow drawing an accurate picture of the human-forest interface. A participatory approach paves the way for realistic management criteria that are really adequate to the ecological and social situations. The management criteria will provide a tool for further discussions on landscape management in central Menabe.

INTRODUCTION

PROJECT'S RELEVANCE AND CHANCES Local populations use the forest in two ways: directly, to collect products and indirectly, for forest services. Forest conservation programmes that close forest to the public have often had negative impacts on the neighbouring populations (Ghimire 1994), because they change villagers' access to food (Kunarattanapruk *et al.* 1995). The consequences of such conservation programs on the indigenous populations are hard to measure (FAO 2003). Moreover, traditional systems of forest management, which advocate an extensive utilization of resources, threaten the preservation of natural ecosystems when demographic pressure increases (Schneider and Sorg 2000). As villagers are not only dependent on the forest, but also well placed to intervene effectively in forest management (Schneeberger 2005), biodiversity conservation would need to be ensured by a sustainable participative landscape management that accords with villagers' access and property rights.

In Madagascar – an internationally important hotspot for biodiversity (Myers *et al.* 2000) – the forests make up part of the village territories and furnish local populations with wood and non-wood products, as well as services. Forest soils constitute a reserve of pasture and cultivable land for livestock and shifting agriculture. The right of exploitation for the villagers is only allowed in forests that are not subjected to protection regulations or where no concession is allocated. All forests are state property. Former rather authoritarian Malagasy policies aimed at protecting natural resources totally excluding communities from natural resources management. These policies failed and, since 1995, environmental policies have been set up that move towards a participative management of natural resources (GELOSE: *gestion locale sécurisée*), and which aim at sustainability (Rakotovao *et al.* 1997). Although forest management has partially been transferred to the villages (Raoliarivelo 2001) and communal rights of usage duly recognised, the transfer of competencies to local organisations hamper (Randrianasolo 2000) as the normative speech of the state does usually not agree with local village rules (Ranjatson 2004).

In Madagascar, as in other developing countries, demographic pressure is increasing (Kistler 1999) and young people are obliged to move to forested areas to find new land that they can cultivate for a living. The region of Central Menabe (see Map 1 and 2), along the west coast of Madagascar, receives flows of immigrants, which increases the pressure on forest (Lebigre *et al.* 1997). It seems that villagers' exploitation of forest products and soil is uncontrolled and unmanaged and that loggers enter the forests in this zone largely illegally. Even though the number of village fires destroying forests to create spaces suitable for cultivation is decreasing, former clearing has drastically reduced the once large forests in the area (Genini 1996). If the deforestation in the dry region of Central Menabe continues at the present rate, the forest will disappear and no longer be capable of ensuring the different services it provides (amongst others the maintenance of biodiversity and a CO_2 sink) (Sorg *et al.* 2003). Nor will it be able to provide the numerous resources for the local populations (nutri-

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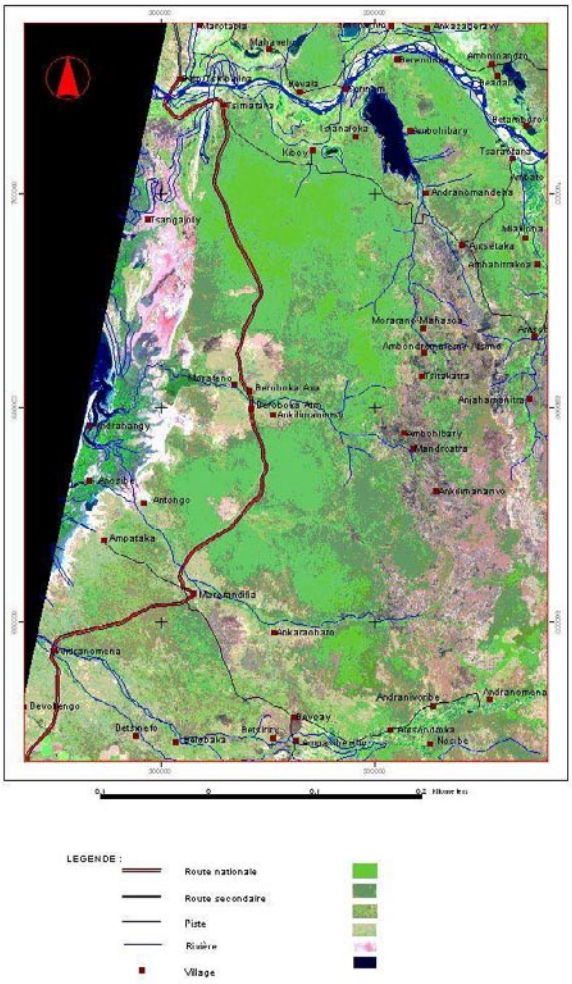

MAP 1. The research site is located on the west coast of Madagascar. Source: wildmadagascar.org

tion, source of energy, building material, medicine, etc.), or retain the soil. In order to conserve the biodiversity of the dry forest of Central Menabe, a new protected area is in the process of being set up. Zoning activity is in progress, which aims to define zones according to their use. Largely speaking, the forest landscape will be divided into a) zones to be protected, and b) zones to be exploited by villagers and other stakeholders. It seems, however, that local populations will have only limited exploitation rights (Raharinjanahary 2004). It is therefore urgent to intervene in the region of Central Menabe with a view to ensuring the sustainability of all forest functions and to filling the needs of a range of stakeholders. These are the goals of a project, carried out by the Swiss Federal Institute of Technology, Zurich, Switzerland (EPFZ) and the "Ecole Supérieure des Sciences Agronomiques", Antananarivo, Madagascar (ESSA), which has been launched in this region. The project aims to provide scientific criteria, developed together with the local populations, for a sustainable management that can be inserted into future regional zoning.

The study can make use of a range of very favourable starting conditions. First, the broad and deep knowledge of the studied zone provides a very good and detailed description of the situation, which gives the project a sound basis from which to start. The zone of Central Menabe and the dry forest of Kirindy in particular (a forest used as a research site in this zone) have been subjects of a number of multidisciplinary scientific studies over the past 25 years (Ganzhorn and Sorg 1996, Goodman and Benstead 2003). A

MAP 2 The research site is located on the west coast of Madagascar (zoom). Source: wildmadagascar.org

wealth of knowledge concerning forest (Prelaz and Rakotonirina 1982, Covi 1990), fauna (Ganzhorn *et al.* 1996, Schülke 2005) and land-use issues (Favre 1989, Raonintsoa 1996, Paupert-Razafiarisera 2005) exists for the Kirindy region. This is an extremely rare situation for a Madagascan dry forest landscape (Dufils 2003).

Second, the project should be of great interest to every actor in Central Menabe, because deforestation concerns everyone:

1. Villagers depend on the forest mainly for grazing cattle, numerous non-wood forest products (NWFP) and for timber.

2. Energy and construction wood correspond to both current and future demand, also for people of the town Morondava.

3. The level of international interest and involvement in biodiversity issues is high. Environmental organizations are present and want to protect the forest.

4. Development organizations engaged in the region have established good relations with the villagers and have wide knowledge about their ways of life and their demands on forest products and soil.

This situation should facilitate the project's implementation and development.

Third, the limited number of actors of this forest landscape should simplify the task of determining management criteria that satisfy all actors' needs and demands; villages are small, Morondava, Belo and Mahabo are the only towns in the vicinity, there are only few environmental and development organizations to liaise with, tourism is not yet an important factor and some loggers have already been stopped.

OBJECTIVES, ABSTRACT OF METHODOLOGY AND RESEARCH SITE

The main objective of the project is to set up scientific bases for a sustainable multifunctional and participatory management of a forest landscape in Central Menabe.

Taking into account participatory management and forest "multifunctionality", the project combines two of the United Nations' Millennium Development Goals: livelihood development (*e.g.*, the use of forest resources by local populations) and nature conservation (emphasizing the role of these forests as hotspots of biodiversity). As the conservation of dry tropical forests has become urgent (Bellefontaine *et al.* 1997, Sanchez-Azofeifa *et al.* 2005) and as combating poverty is a major aim also in the domain of forestry (Dürr 2002), the project brings together a number of internationally important issues. The specific objectives are to:

1. Assess the role of forest products and local knowledge about forest and tree management in the livelihood strategies (human-forest interface).

2. Determine production potential and regeneration capacity of the most important forest products that underpin livelihoods.

3. Deduce potentialities and constraints for sustainable management of a landscape with a major forest component.

The project is based on a consultative and an active participatory approach that integrates scientific and indigenous knowledge. Starting from present day local knowledge on land-use, it aims to provide, at a landscape level, scientific management bases respecting forest biodiversity. In particular, the project aims to improve strategies in the market chains of forest products, integrate agriculture (agroforestry) and livestock in forestry and establish the potentialities in biodiversity conservation of payments or compensations for ecological services.

The Central Menabe region is characterised by a landscape of primary and secondary dry forest, savannahs and surfaces cultivated with maize, groundnut and cassava. Villages are small (around 500 inhabitants) and most of villagers live in precarious economic circumstances. Due to the scarcity of agricultural products during dry seasons villagers depend heavily on the forest, especially during these periods.

As the project is being carried out in an area representative for the dry forest zone, it is likely that research results can be applied to other regions of Menabe in future.

ORGANISATION OF THE PROJECT

The project is based at the EPFZ (Group for Forestry and Development). The Swiss Center for International Agriculture (ZIL) of Zurich has assured funding for the project from November 2005 until October 2008. Two PhD students, one from Madagascar and one from Switzerland, are doing the research. Tasks are shared according to the background and experience of each. The Malagasy forest engineer works mainly on forestry aspects (*sensu stricto*) and landscape issues, while the work of the Swiss biologist focuses mostly on NWFPs and multifunctional issues. Academically, the Malagasy PhD thesis is supervised by the ESSA and the Swiss one by the EPFL (Swiss Federal Institute of Technology, Lausanne, Switzerland). With a view to ensuring the transdisciplinarity of this predominantly ecological research, the PhD theses are reinforced with two socio-economic DEA (*Diplôme d'études approfondies*) and two Master theses on social issues.

The project is supported by local and international partners. The CFPF (Centre de Formation Professionnelle Forestière, Morondava, Madagascar) and the CNRE (*Centre National de Recherche sur l'Environnement*, Antananarivo, Madagascar) support ecological issues, whereas the CIFOR (Center for International Forestry Research, Bogor, Indonesia) and the SAHA Menabe (Organization for rural development on the western coast of Madagascar, Intercooperation, Morondava, Madagascar) supports mainly the social issues of the project.

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