Manambolo Project BIOSPHERE RESERVE



Our future is in our Hands Like the tree in the seed



A project initialized by the **NGO VAKANALA** in collaboration with serving rural **communities** bordering the **Manambolo** forests.

MADAGASCAR a scrappy heritage

A unique biodiversity



Detached 160 millions years ago from the African continent and over 700 km off the South-Eastern coast of Africa, in Indian Ocean, Madagascar has developed a very unique flora and fauna in the world. Over 80% of it is endemic and is now recognized as one of the Biodiversity Hot-Spots in the world. There are more than 12 000 species of plants which are specific to Madagascar: 6 out of 8 species of baobab trees of the world, more than 1,000 species of orchids, 200 species of palms, and as many species of succulents The is plants. fauna also particularly unique, since mammals are almost exclusively represented by the lemurs, with more than 60 species, all unique to the island. There are also over 500 species of amphibians in Madagascar, about 350 species of chameleons and 200 species of snakes, and almost all of them are endemic.

A 80% rural population

In contrast to this natural and luxury richness, the situation of the Malagasy population is much more sober: 23th poorest country in the world and the average monthly wage is less than 30 \$. Madagascar is unfortunately still bruised by its history, relatively bloody under French colonization. Since its independence day in 1960, the political instability of successive governments has prevented the country to really develop. Thus, the country is predominantly rural. The population's survival relies mostly on a particularly precarious food crop. The access to water in the south west/south part is not always permanent. More alarmingly, the traditional rice growing (slash and burn) appears disastrous today: expansing and totally unsustainable. The farmers must constantly burn forests to get more arable land.

Desertification : a vicious cycle

Imported the first by inhabitants Malaysian of origin, swidden farming has proved unsuited to the laterites soil, poor enough, and fragile ecosystems of island. Once the the forest disappears, the soil is rapidly eroded and its organic matter washed away by intense tropical rains. In the dry season, the little vegetation that has rapidly grown back is burnt by bush fires that ravage the island. The combination of these two phenomena, repeated year after year, have dramatic consequences Madagascar leading to soil sterilization. The land becomes unsuitable for agriculture as well as for natural regeneration of forests. Thus, while forests used to cover over 90% of the island before the arrival of humans, they now represent only 15% and much of the country is now covered by steppes which can be described as a biological desert.

Forest covert fragmentation

The consequence of this massive deforestation is the extreme fragmentation of forest cover, composed by over 80% of fragments of less than 5000 hectares. This fragmentation is dangerous, because of very low resilience of such small fragments verv sensitive to human pressures. We could then observe decade. next in the а phenomenon of acceleration of loss of the forest cover in with Madagascar the almost simultaneous disappearance of all these fragments, even though they are true sanctuaries for different local and regional species, which are isolated and can find there a last refuge. These fragments represent also very important natural resources and the population could not do without them. Unfortunately, these fragments are just hardly or not protected since only 36% of the fragments of 500 to 5000 hectares are protected, and less than 10% for those under 500 hectares.



Biosphere Reserve of Manambolo

Development & Sustainable Management of Natural Resources

Context

Located in the Ihorombe region, in the rural district of Ranohira Menamaty-Iloto, the forest of Manambolo is composed of 3 fragments of dry forest (about 8 000 ha in total). The area is inhabited by over 1500 people, mainly distributed in 3 main villages Iloto, Itoha and Isoalaza. With a subtropical dry climate (below 500mm rainfall per year), agricultural activities are focused on cattle, or non irrigated (cassava, maize. crops groundnuts) and fruit trees.

Unfortunately, soil erosion, once the forests have been burned, is particularly important, and lands have very poor performances. The drinking water is a major problem. People rely mostly on water springs, or more generally on water from the rivers which cause a high prevalence of diarrheal diseases. The area is particularly isolated. Access to education is problematic for the hundreds of children in the area. as the nearest school is at several hours of walk.

A Reserve of Biosphere implementation

The population is already surprisingly sensitive to the interest of forest conservation as essential asset to their an development. Anxious to preserve their "forest capital" and aware of the increase in traffic of illegal wood and fires this year, they have appealed to the NGO Vakanala for the establishment of a sustainable management of their resources. In order to meet the national objectives by 2012 to triple the size of protected areas of the country, Vakanala team proposed the approach of the program "Man and Biosphere (MAB) of the UN. This form of protected area propose as objective to integrate into a single

process, the conservation and sustainable management of natural resources, and hence biodiversity, and sustainable development of local populations.

We have therefore presented the communities with an action plan, based on 3 axes, and received their endorsements, along with the one from the village elders (customary authority) and the mayors of three main villages.

Reforestation

To develop a sustainable management of natural heritage of this area, we agreed with the communities to start a reforestation program to restore the land fallow, whose soils have been badly degraded by erosion. Based on permaculture methods, we combine various endemic species, fruit and fast-growing species to recreate, in stages, ecological conditions for sustainable agriculture on the one hand, and the restoration of primary forests indispensable the to preservation of biodiversity on the other hand.

Basic infrastructures

In order to best meet the needs of the communities, Vakanala has chosen to prioritize first the following actions, which correspond to the needs expressed during the meetings:

- establishment of standpipes in each village;
- building of a school for children in the area.

Status of Protection

Alongside these initial actions, will take over the Vakanala ecological studies, the sociostudies, economic the intercommunication at the level of the communities level, the region and the Ministry of Environment to obtain a classification of this area as 'Biosphere Reserve' an Protected Area, and also the drafting of a Plan of Arrangement and Management of the future and the protected area, establishment of lona term funding mechanisms to continue and sustain the present and future actions of Biodiversity Conservation and Rural Development.



Reforestation A tool for development

Reforestation projects are numerously found in Madagascar and will mostly fail. The main constraint is the fact that the soils are completely depleted and eroded by tropical rains and the bush fires. It is therefore not possible to simply "plant trees", without going through a thoughtful process to ensure the success of reforestation in the long term.

Moreover, it is essential to take into account the economic needs of communities, and to integrate agricultural development in the process of reforestation, in order to provide an alternative to cutting the endemic species, often used to produce coal for resale purposes.

General strategy for reforestation

The mechanism of reforestation that we have chosen is based on recent advances in the field of ecological restoration. It can be divided into several phases:

- planting of fast growing pioneer species to create a microclimate by creating shade and early regeneration of soils by the appearance of a root zone, allowing a decrease runoff, a replenishment of groundwater and also to prevent soil erosion;
- planting a mixed stand of resistant endemic species and of fruit trees, which have rapid cycling and will bring organic matter;
- integration of alternative crops in the same areas of reforestation, where they will benefit from the microclimate, and from the soil qualities;
- 4. planting most sensitive endemic species when necessary conditions met.

Community Nursery

It seems more appropriate to establish our own nurseries producing seedlings from seeds and cuttings from remnant fragments. The plants thus obtained are of species and genetic strains already adapted to local environmental conditions, and it has many others advantages:

- high species diversity ;
- lower raw cost per plant;
- low cost of logistics and transportation;
- new job opportunities for communities ;
- Multi-purpose nurseries, including production of food species (fruit trees, eucalyptus, gardening)

Community Ecological Monitoring

Establishing a system of forest monitoring, monitoring of plants for reforestation and biodiversity through geo photography, field surveys can then be made directly by communities.









Implementation

Previsional planning



Previsional budget

Reforestation		
Seeds Bank		5 000 €
Nursuries (construction & facilities)		10 000 €
Planting of 10 000 trees		5 000 €
Agriculture enhancement		5 000 €
Ecological monitoring		5 000 €
•	TOTAL	30 000 €

Basic infrastructures		
6 hydrants/wells	10 000 €	
Elementary school (construction + operation costs)	25 000 €	
TOTAL	35 000 €	

Protected area classifaction « reserve of Biosphere »	
Ecological inventory and report on state of repair	6 000 €
Social economic study	6 000 €
Social marketing & Consultation	5 000 €
Impact study	10 000 €
Management plan conception	5 000 €
Long term fund raising seeking	3 000 €
TOTAL	35 000 €