

INSTITUTE OF CURRENT WORLD AFFAIRS

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Madagascar: Maintaining Diversity

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Dear Peter,

Madagascar is confronted with a "burning issue". Each year much of the Malagasy countryside burns, as people employ traditional practices of slash-and-burn agriculture. They clear land of woody vegetation for rice cultivation. People also set fires to promote the growth of grass for livestock.

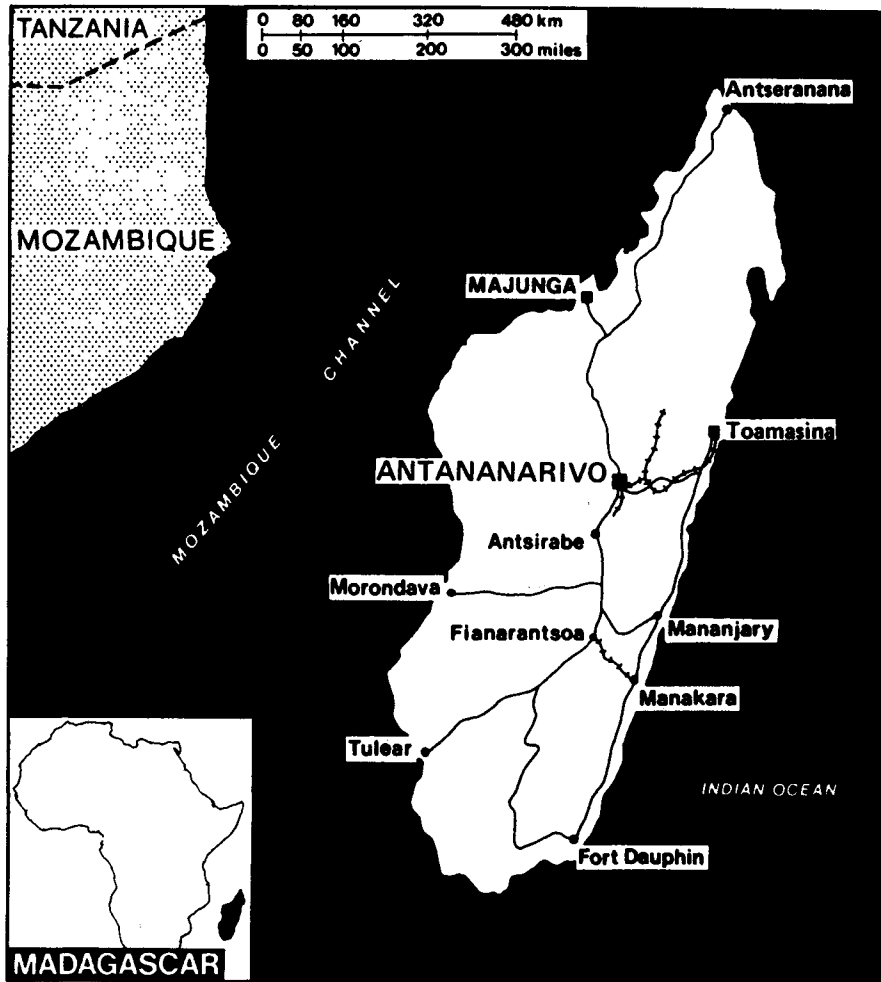
In the past people were often obliged to plant trees on denuded hilltops, which was land claimed by the national government. These plantations then belonged to the state, and the workers received no return on their efforts. Consequently, if a fire set to clear a pasture escaped and burned plantations, no one felt any interest in stopping the fires. It is believed that some fires may be set for reasons of political protest.

The resulting deforestation and erosion is incredible. When I flew from Nairobi to Antananarivo, the capital of Madagascar, I was amazed. The landscape below looked like something from another planet -- or maybe similar to a scene that one might see peering through a microscope. Initially, I could see no signs of trees -- just brown hilltops, etched with fine swirls -- the stream and river drainages. As the plane descended, in preparation for landing, I was able to see some scattered trees.

The rate of deforestation is the greatest in Africa. Madagascar's original 200,000 square kilometers of rain forest has been reduced to only 20,000 sq. km. Each year Madagascar loses 200,000 hectares of forest. The amount of forest in 1985 is only half of that in 1950. The deforestation has severe impacts on soil erosion: each year an estimated 100,000 tons of arable land are lost and more than 10,000 hectares of rice fields silt up and go out of production (Ramanankasina 1985; Jolly 1987; Cabalzar 1987).

Much global environmental attention has focused on Madagascar, as the country contains many unique plant and animal species. The country is composed of a series of islands. The main island, Madagascar, is the fourth largest island in the world, over 1000 miles long, between 280 and 350 miles wide, comprising an area of 226,658 square miles -- a mini-continent. Many species of plants and animals have evolved on Madagascar, in isolation from other populations since the island separated from the mainland continent of Africa, approximately 165 million years ago. For example, Madagascar has six distinct species of baobab trees, whereas only one species exists throughout the African continent.

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Location of Madagascar

(From: The Africa Review, 11th Ed. Essex, Great Britain:
The World of Information, 1987, p. 137.)

Madagascar is also renowned for its populations of lemurs. Lemurs are tree-dwelling mammals, that are about the size of a small (5-8 lb.) domestic cat, with long bushy tails. Their heads look somewhat like foxes, but they most resemble miniature monkeys in their behavior. Over 30 species have been identified in Madagascar. These animals are endangered, as their forest habitats are disappearing.

Madagascar differs from mainland Africa not only in terms of ecology, but also in terms of social and cultural history. The island was not inhabited by humans until around 1500 years ago. The first inhabitants came from Indonesia and other parts of the Malay Archipelago and from mainland Africa. From 1895 to 1960, Madagascar was a French colony. This historical blending of peoples has created a unique culture. Evidences of socio-cultural differences from mainland Africa are everywhere. For example, traditional two-story houses are common in the High Plateau countryside, whereas in most African countries rural homes have a single story. Women's roles in Malagasy society also contrast with those found in many mainland African societies.

In 1985, the International Union for the Conservation of Nature and Natural Resources (IUCN) and the World Wildlife Fund (WWF) held a major conference in Madagascar. The Duke of Edinburgh (Prince Philip), as honorary chairman, was horrified by what he saw in Madagascar. He declared that the country was committing "ecological suicide." He called for action to halt the environmental deterioration.

As a follow-up to this meeting, the government and outside donors, coordinated by the World Bank, have been developing an Environmental Plan of Action for the country. In addition, more donors are now financing programs dealing with conservation and development issues. Because of Madagascar's poverty and lack of infrastructure in the natural resource area, the country needs much outside assistance to develop better environmental management.

The U. S. Congress has mandated that the U. S. Agency for International Development (USAID) devote some development funds to maintaining biological diversity and tropical forests. In Madagascar, USAID hopes to fund four or five projects with private voluntary organizations (PVOs) for joint conservation-development activities. The World Wildlife Fund (WWF) and Catholic Relief Services (CRS) may begin a project at Amber Mountain, near Antseranana. USAID plans to continue to support lemur research being undertaken by Alison Jolly and her colleagues at Beza Mahafaly, near Tulear.

These projects aim to help maintain biological diversity, by preserving natural resources in several natural reserves. In the surrounding areas, development activities will be undertaken with local residents, to provide alternative sources of resources formerly obtained from the reserves.

In June I spent a week in Antananarivo and visited a project in the nearby countryside. My impressions are thus initial ones, based upon the High Plateau region of the country. While in Madagascar, I talked with people in a variety of organizations who are working on forestry and environmental issues.

When I asked people about women's participation in forestry activities in Madagascar, the question was generally one of surprise. Few people have thought explicitly about the issue, although many assume that such activities intimately involve women. One colleague said that Malagasy society has high regard for women, and women's opinions are well-respected within their families. As he pointed out, the most influential monarchs of Madagascar in the 19th century were three queens.

In modern Malagasy society, one finds many well-educated professional women. Estelle Ramanakasina, an ecology professor, has argued that women must be involved in these efforts to reverse the devastating environmental trends. More women are needed for scientific fields and grassroots-level development activities. Within forestry, for example, although there are not yet any women forestry technicians, several university-educated foresters exist.

The World Bank-funded industrial forestry project, Socit Fanamalanga, employs approximately 1600 workers, to work on pine plantations and resin production. One-third of the employees are women, including some professionals. Two of the six foresters working on research are women: one is a plant nutritionist, while the other specializes in forest genetics. (Andrianjohary Rabetaliaina, the forester who heads this enterprise, also proudly told me that his daughter is a forester, doing graduate work in agroforestry.)

The FAO project, "Operation Savoka," had ended the week before I arrived in Madagascar. Raymond Rakotonindrina, who had headed Operation Savoka, is now the Chief of the Protection of Nature for the Direction of Waters and Forests. Rakotonindrina described how the FAO project had tried to involve women. Women extension agents worked with local women on both nutritional activities and general extension efforts. Project staff believed that the best way to educate families is through the women.

The nutritional activities encouraged women to cook alternative foods, such as taro and local fruits, to reduce their consumption of rice. Rice is the staple of the Malagasy diet, ideally eaten at every meal. Clearing land for rice production is a major cause of deforestation. Promotion of other foods, thus, aimed to reduce the pressure on the forest lands. Some of these activities may be carried on by the World Bank and other donors in new projects starting soon. New activities may encourage development of private tree nurseries. In Madagascar, women's work includes transplanting rice and other crops, so women undertake tree nursery work.

One woman that I met was Madame Yvette Rabetafika-Ranjeva. An English professor at the University, she works on women and environmental issues. She has been an active volunteer in Fianakaviana Sambatra (FISA), the Malagasy Family Planning Association. This organization has been in existence since 1960. To date, the organization's efforts have had a minimal impact on the population growth rate, which is 2.9 percent. Less than two percent of the population use contraceptives.

Awareness is growing, however, of the links between the rapidly growing population and the deterioration of the environment. In the past FISA has engaged in some tree-planting ceremonies. As FISA has grown more interested in environmental activities, it hopes to expand its activities in collaboration with the World Wildlife Fund.

The World Wildlife Fund (WWF) has already been actively promoting environmental education. Barthelemi Vaohita, the WWF Representative in Madagascar, showed me the botanical gardens and zoo in Antananarivo. WWF has devoted facilities there for environmental education, with special programs for schoolchildren. Visitors can see lemurs, exotic palms, and other flora and fauna. A small museum also contains fossils of extinct species, such as a pygmy hippopotamus. WWF also works in rural villages on school programs.

A Swiss pilot project is supporting reforestation efforts in the Siasony watersheds. A major rationale for this project, only 25 kilometers from the capital, is to minimize flooding. In January 1987, the Sisaony river, which flows by Anatanarivo, overflowed its banks and 25,000 people were evacuated.

I visited the project and met with Philippe Poget, the project director, and some of his Malagasy and Swiss colleagues. The project has worked with the Government of Madagascar to make land available to local residents who agree to improve its value by planting trees in woodlots. Participants sign up for parcels of land. They are provided with small seedlings, which they nurture in small home nurseries. The project has provided a variety of timber species -- pines, eucalyptus, casaurina, callitris, Cupressus, and Grevillea. Some acacia species are being used to improve the soil.

Project staff have focused their efforts on these woodlot plantings. They have also encouraged farmers to plant trees along field borders, to plant anti-erosion rows of trees and grasses, and to plant certain tree species within the rice fields. In the future, project staff hope to devote more time to such agroforestry interventions.

When the trees are ready for transplanting, the participants plant the seedlings according to prescribed standards. The size and depth of holes and the procedure for planting the tree seedlings is specified. One hundred trees are planted per parcel.

If the trees are well cared for, then participants receive a certificate for improving the land value of the parcel. Local community evaluation committees check the activities and award points for performance, based upon standards prescribed for the mini-nurseries, the holes, and the planting. A participant must earn two-thirds of the total possible number of points to earn a certificate. After a couple of years, the certificates are transformed into a provisional land title, which becomes permanent after five years.

If a participant fails to conduct the work properly, he or she is given a second chance the following year. If someone fails a second time, then the parcel is given to someone else to use. A common reason for failure is that the work needs to be done at the same time of the year when people are busy with rice cultivation. While the holes can be dug in advance, the trees -- like rice -- need to be transplanted during the rainy season.

In the first year of the project, most of those registering for parcels were older men. Beginning with the second year, women and younger men also signed up for parcels. Many parents signed up for parcels for their children, and did the work on their behalf. Some registrants, thus, are only six months old! Besides women registering directly on their own behalf, many women have also contributed labor to the parcels of other family members, such as taking care of the tree nursery.

The project has tried to reach the whole community. No particular attention has focused on encouraging women's participation. Women now comprise approximately one-quarter of the participants. Each year a few of the project's extension agents have been women, who have been well-received by the community. Last year two of the thirteen agents were women.

As part of the extension activities, project staff members have used posters showing different stages of development of the woodlots. They discuss how many days of labor are required each year per parcel -- taking care of the trees in the individual nurseries, digging holes, replanting the trees, maintaining firebreaks, weeding around the trees, and in the future, thinning and harvesting the trees.

They also discuss anticipated economic returns. The project staff has estimated that the woodlots can begin to be harvested when the trees are twenty years old. By harvesting 10 percent per year, woodlot owners could sustain a constant level of production. The wood can be used for the family's own needs, or sold to the nearby Antananarivo markets. The government has agreed that land owners will not have to pay any taxes until the trees are cut. These discussions help participants envision costs and benefits over a thirty-year period, rather than just thinking of next year's (rice) harvest.

The extension agents educate people on the ecological effects of slash-and-burn agriculture and deforestation. Besides progressively destroying the resource base for agriculture, the burning of woody vegetation and ground cover also leads to massive erosion problems. The resulting sediment flows fill up rice fields, making them unproductive. While people understand that the floods are disastrous for their rice fields, few people yet comprehend how these floods are linked to deforestation of the watersheds.

As part of their extension efforts, Project staff members have developed a booklet and a series of posters. These relate the tale of two brothers, Rabetsara and Rabezizo, who inherit land on adjacent hilltops from their father. The story traces how the brothers manage their land differently.

Rabetsara stops burning his land, and plants trees. He establishes both woodlots and agroforestry plantings. Rabezizo, on the other hand, sees no point in changing from traditional practices, even though the population density is increasing and the land availability decreasing. By the time the two brothers' children have reached adulthood, twenty years after the tale begins, they confront very different fates. Rabetsara's children are educated and the land is well-managed: some exploit the woodlots established by their father and get good agricultural yields. Rabezizo's offspring, however, are poor and uneducated, while their land has become severely eroded and degraded: they seek work in the towns.

To extend and replicate the work obtained from this pilot project, a new Malagasy non-governmental organization, ORIMPAKA, was being established at the time of my visit. The Swiss are providing this NGO with funding to undertake a similar project in a nearby area. Two of the foresters trained in the pilot project will work on the new NGO project. Rene Rabekoriana, the director of ORIMPAKA, explained that the organization hopes to secure funding to undertake other projects.

Compared with other forestry projects that I have visited in Africa, this project was notable in several respects. First, although many people have talked about the need to overhaul land and tree tenure systems, this project is one of the few that has actually negotiated changes in tenure policy with the government.

Second, land ownership can be earned by any individual who participates in the program. Participation is not just restricted to "family heads". Therefore, women theoretically can obtain access to and control over land just as men can. In Malagasy society, however, men traditionally own land.

As women participants are significantly outnumbered by men, however, women's participation may still be constrained by other factors. For example, it may be difficult for women to find the time needed to work the parcels -- given women's other responsibilities. No one has yet examined this issue.

Nor is it clear exactly how or who makes household-level decisions -- such as land use and the division of labor. If a woman owns land, will she make the decisions, or will her husband or other male relative? Often, before making major decisions, such as the cutting of trees, the household head will consult family members. The oldest and most respected family members may be women, whose opinion will carry considerable weight.

Third, the project is adopting a long-range view in its extension approach. While some projects advocate that people adopt resource management practices that may benefit their children, this project explains exactly how the costs and benefits will unfold over time. Farmers are asked to think in terms of changes in small increments, of a few years at a time. They are not expected to envision twenty years' worth of changes all at once.

To date the approach looks promising, but it is too early to know for sure how it will develop over time. The major question is what will the farmers do after the initial five years, once they gain full title to the land? Will the farmers maintain and improve their woodlots, or will they cut them down and use the land for agriculture?

Everyone hopes that this project and similar development efforts will succeed. Without such efforts, Madagascar could lose all its forests by the year 2000. Such a loss would be not only devastating for the Malagasy people, but the whole world would be immeasurably poorer. Our world flourishes on socio-cultural and biological diversity, such as found in Madagascar. Efforts to find new development approaches in Madagascar may contribute not only to solving the country's own crises, but may prove useful elsewhere.

Sincerely,

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