

In the Land of the Indiri Indiri

An innovative risiculture technique developed in Madagascar has agriculture helping the environment

The Malagasy call the deep-red gulleys caused by erosion in their highlands 'lavaka'. It's a new name—invented about 50 years ago—when the fissures first started opening up.

Lavaka are strangely beautiful: red, cabbage-shaped crevices cut into green hillsides that form when a

patch of hillside collapses in on itself. They are caused by weakened terrain wherever forest is cut down, but the cultivation of rice certainly helps to speed things up. Lavakas have silted up the waterways, turning the Betsiboka, the Mahajamba, and the Onibe rivers into slow-moving canals of earth and water feeding into the

photos Anya Fernald





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“The fourth largest island in the world, 90 percent of its flora and fauna is found nowhere else. Africa is home to one species of pot-bellied baobab, Madagascar boasts seven. Madagascar is home to two-thirds of all the world’s chameleons, from ones the size of a matchstick to ones almost as long as your arm.”

Gerald Durrell, *The Aye-Aye and I*, 1992



“Our flight to Ambatondrazaka, largest town on the shores of Lac Alotra, was depressing beyond belief. Miles and miles of hill country, once forested, now showed bald and split with a million scarlet wrinkles, the first signs of erosion, the disintegration of the land.”
 Gerald Durrell, *The Aye-Aye and I*, 1992



Mozambique Strait and the Indian Ocean. The World Wildlife Fund recently declared Madagascar the most eroded place on earth, due to timber harvesting and slash-and-burn cultivation (only 21 percent of Madagascar's primary forests have survived the past century).

In terms of flora and fauna, Madagascar still has some of the richest rainforests on earth, but when they are cut down the remaining scant yard of topsoil washes away in monsoon rains. In the most exposed places, that takes just about three years, and the remaining substrate is too high in aluminum and iron for agriculture. Crops can no longer be

cultivated, and the runoff from these dense mineral soils even poisons lowland crops downstream.

Slash-and-burn agriculture once made sense for Madagascar's rice culture. After two to three years of cultivation, rice fields were left fallow for periods of up to 50 years, the long rest period allowing the forest to regenerate. But sharp population increases in the 1960s threw this system out of kilter, put new pressures on production, and forced farmers to reduce the fallow period to just a few years. The forest couldn't bounce back, and the first lavaka started opening along seams in Madagascar's interior, near Lac Alotra. Now,



Rice market in Mananjary; photo Wolfgang Kaehler, Corbis/G. Neri

erosion is putting Madagascar's great natural biodiversity at risk and cutting into the amount of arable land available to Malagasy farmers.

Frere de Laudanié

Enter Father Henri de Laudanié, a Jesuit priest and agronomist who moved to Antananarivo from France in 1961. De Laudanié knew nothing about rice, but he understood that to help improve the quality of life in Madagascar, you had to start by improving the rice fields. The priest learned Malagasy, and began working with local farmers to teach basic land maintenance skills, such as crop rotation and the use of compost. Lat-

er, he founded an agricultural school in Antsirabe with various test gardens where, in 1983, de Laudanié stumbled on an entirely new way to cultivate rice. A series of natural events forced de Laudanié to change his usual calendar of transplanting rice seedlings, and he discovered that by transplanting the seedlings earlier than usual, the yield almost doubled. The priest knew he had found something important, and from then on, de Laudanié improved his 'early-transplant' technique. He added various techniques he had seen function in other studies: the seedlings were transplanted singly, not in clumps of five or six; the roots weren't cut or

photo Gallo Images, Corbis/G. Neri



damaged at transplant; the seedlings were planted evenly in well-spaced rows; the rice was rotated with nitrogen-fixing crops to restore the soil; most importantly, the water in the paddy was drained off daily.

De Laudanié founded the Tefy Saina organization to promote the newly minted "Sisteme de Riziculture Intensive" (SRI) with two Malagasy colleagues, Sebastien Rafaralahy and Justin Rabenandrasana. Together, they worked to promote the tech-

nique. When Tefy Saina's work caught the eye of the international agricultural research community, de Laudanié was already at the end of his life, but Tefy Saina continues to train others in SRI. Now the technique has spread to almost 30 countries in the developing world.

"This is agriculture that protects the environment, reducing erosion while increasing yields," explains Rafaralahy. The SRI fields are rotated regularly, meaning the same terrain can be used for ten or 15 years of rice harvests instead of two or three. SRI also produces yields from three to five times as high as traditional techniques (using traditional rice vari-



eties, not hybrid seed)—all without chemical fertilizers or pesticides.

Kolo Harena

The Andasibe Park anchors the southernmost tip of the longest ‘corridor’ of primary forest still intact in Madagascar. A ‘corridor’ is a contiguous strip of forest uninterrupted by highways, dams, or other man-made changes. This ‘corridor’ links three different nature reserves (Andasibe-Analamazotra, Mantadia, and Zahamena), which, if surrounded by developed land, would become limiting ‘islands’ for native species.

Over 90 percent of Madagascar’s flora and fauna are endemic, making the island one of the most biodiverse places on earth, and Andasibe is no exception. The park is home to lemurs like the child-size *indri indri*, and the nocturnal *aye aye*, black wide-eyed creatures smaller than a house cat. Hundreds of orchid species grow in the overstory of the rainforest, creating a canopy that protects the humid habitat of chameleons with turret-

shaped eyes, geckos a foot-long, and iridescent frogs. The primary risk to the great diversity of the park is the encroachment of agriculture, and in 1998 the Landscape Development Intervention program began to work with Tefy Saina to spread the use of SRI agricultural techniques in the farmlands encircling the area to reduce pressure on the area’s natural resources and to help farmers form independent associations called ‘Kolo Harena’.

With this new legal status comes the possibility of outside funding and the possibility to enter into sales contracts. They also benefit from the farmer owned and operated *Centre de Diffusion pour l’Intensification Agricole* (CDIA), which offers courses yearly to 900 farmers in everything from chicken farming to malaria prevention.

The Kolo Harena project has encircled the precious forest corridor with a network of farmers interested in improving the region’s agriculture while maintaining its natural diversity.



Ambositra, photo Jeremy Horner, Corbis/G. Neri



photo Gallo Images, Corbis/G. Neri



THE ANDASIBE RED RICE PRESIDIUM

The Andasibe Red Rice Presidium synthesizes an innovative agricultural approach (SRI) with the promotion of five indigenous *varymena* rice varieties. The Presidium rice is cultivated according to the principles of SRI, without any pesticides or chemical fertilizers. This technique gives high yields with minimum impact on the environment and, most importantly, it is an economically viable alternative to slash-and-burn cultivation.

The Presidium is in collaboration with the Tongalaza Kolo Harena Farmers' Federation, which represents Kolo Harena farmer associations in the communes of Ambatavola, Beforona, and Andasibe. The farms in the Presidium project are on the edge of the Analamazotra-Andasibe Reserve in the eastern part of Madagascar, part of the 'buffer zone' of sustainable agriculture that various NGOs are working to develop around one of Madagascar's last remaining forest corridors.

The Presidium will invest in rice hulling and cleaning equipment, packaging and labeling for the Kolo Harena association, which will enable them to have a transportable and durable product (all the red rice currently produced is consumed locally or in-family). The processing equipment will be installed at the Kolo Harena owned and operated production, demonstration, research and training site, the *Centre de Diffusion pour l'Intensification Agricole (CDIA)*, where it will also be for both educational and commercial purposes. In the launch phase of the project, Slow Food will collaborate with the NGO Landscape Development Interventions, with the goal of passing the project in the space of one year directly to the Tongalaza Kolo Harena Federation. Slow Food will work to guarantee a higher margin of profit for the red rice by promoting sustainable production methods, and will seek to give Kolo Harena the tools to improve

distribution within Madagascar and abroad.

Producers

The Tongalaza Kolo Harena Farmer Federation representing 34 Kolo Harena farmer associations that consist of 327 farmers (103 women and 227 men).

Area of Production

Eastern Madagascar, in the province of Tamatave. Farms are located in the communes of Ambatavola, Beforona, and Andasibe.

Presidium Coordinator

Glenn A. Lines
 Directeur Régional LDI Moramanga
 B.P. 56 - Moramanga 514
 tel. +261 205682280
 fax +261 205682282
 email : GAL@chemonics.mg

