



Agroforestry and Sustainable Agriculture: Fighting Poverty and Climate Change

March 2008

Since its creation, Pro-Natura has developed agroforestry initiatives: from tradition to modernity

Pro-Natura presented the global concept of agroforestry and its agroforestry projects in West Africa and Brazil in its January 2003 newsletter.

Today, five years later, we present the results of these projects. It is now less a question of proving the relevance of agroforestry systems in developing countries than seeking to amplify the impact of these techniques in a context of demographic growth and the rapid disappearance of biodiversity.

Agroforestry is a rational land-use system that increases total yield by combining agricultural crops (food-producing annuals) with trees (perennials) and/or with animal husbandry, on the same land, in synergy. The combination can branch out in time, while still respecting ecological conditions and socio-economic situations of local populations. It is also a means to restore and maintain soil fertility.



Setting up agroforestry system is a top priority for fighting against poverty and deforestation of Tropical Forests

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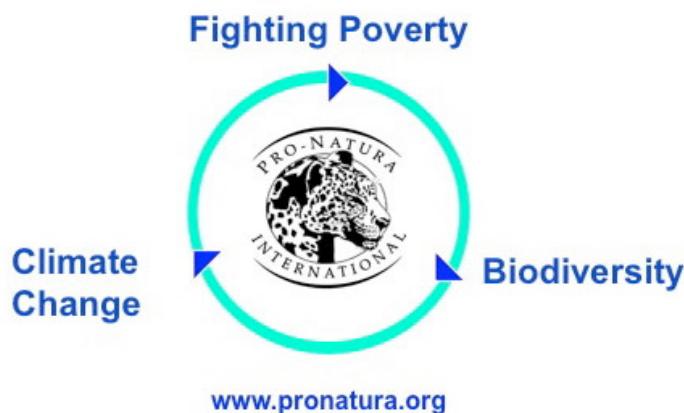
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Agroforestry is a specific and traditional type of agronomy in rural communities in the tropics. The synergies between forestry, agriculture and animal husbandry took a great deal of time to be studied for their economic and socio-environmental benefits. Today, partners are encouraged to put into place this type of agroforestry system based more on their productivity than on their socio-environmental advantages. The methodology that we advocate is that of the establishment of a pilot project on a small or medium scale before passing on to a larger scale. This permits the perfection of technical routes by obtaining quantitative data on the productivity of agroforestry systems, generally much more productive than monocultural systems.

Agroforestry: Food security in the global South and the fight against climate change



have the potential to reduce greenhouse gases in the atmosphere equal to 50 billion tons of CO₂.

The Intergovernmental Panel on Climate Change (IPCC), which was awarded the Nobel Peace Prize, describes the opportunity in this way: "More than a billion hectares are available for conversion to high-productivity agroforestry systems that have the capacity to reduce poverty and deforestation in a significant manner and to sequester carbon on a large scale." According to the IPCC, in the next 50 years, carbon markets could finance such poverty reduction projects, which

Pro-Natura has developed agro-forestry in West Africa for 15 years

Nigeria and Ghana: From schools to fields



Young farmers training programme in Nigeria

Between 2002 and 2005, practical agroforestry instruction was taught at five agricultural training centres supported in Nigeria by the Anglo-Nigerian Foundation, Leventis, and in Ghana by the French Foreign Ministry (Mission for NGO Cooperation), the Leventis Foundation and the University of Ghana, Legon. Close to 700 young farmers were thus trained in agroforestry in various agro-ecological zones: tropical rainforest, forested savannah and coastal savannah.

The principal results obtained in the schools were the following:

- Recruitment and training in agroforestry for a dozen agroforestry trainers following agroforestry studies;

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- Establishment of 7 agroforestry tree nurseries, five *arboreta* or collections of local and exotic species, 15 agroforestry demonstration lots of about 3 hectares each. Close to 13,000 trees were planted in the schools;
- Construction and use of 15 innovative tree-cutting benches or ‘Non-Mist Propagators’, particularly suited to large-scale plant production and the domestication of wild fruit trees which bear fruit twice as fast; and
- Support for agricultural diversity activities such as apiculture, raising of aulacodes (small mammals) or ‘grass cutters’ and mushroom cultivation.

The agroforestry concept, based on the diversification and the sustainability of agricultural systems has, at times, been a difficult notion for some to accept.

It was first necessary to encourage change in certain types of mentalities, which had intensive agricultural production systems as models. The training program in agroforestry is now an integrated part of the theoretical and practical training program of the Leventis Foundation in Nigeria and Ghana. We think we have succeeded in passing on to our partners the techniques and practices that will help them to increase food security while preserving a minimum of biodiversity in the rural milieu. We have also learned a great deal from the farmers and the trainers with whom we have worked, in a spirit of sharing knowledge and valuing technical and human experience.



Between 2005 and 2007, thanks to the financial support of the French embassies in Abuja, Nigeria and Accra, Ghana by way of Social Development Funds (FSD), Pro-Natura ran training programs in agroforestry practices in fields for the benefit of former students and new farmers, for a total of 130 direct beneficiaries. Finally, Pro-Natura published more than 4,000 copies of an agroforestry guide distributed to young farmers.

Excellency Pierre Jacquemot, Ambassador of France in Ghana, observing a tree cutting on an FSD project site

The primary objective for Pro-Natura today is to intensify this type of activity in arid zones where both food supply problems and environmental degradation are alarming. In Ghana, Pro-Natura collaborates with the University to promote innovative agroforestry in intensive cultivation systems like those of cacao and rubber trees. In 2008, the project “Support for small cocoa growers, increase of their incomes and diversification of agricultural systems. Regions of Kade and Jasikan in Ghana” will be put into place with the support of the French Foreign Ministry, the Leventis Foundation and the University of Ghana. The mass production of trees helpful in the enriching of the cocoa trees will be emphasized, as will the establishment of a network of demonstration parcels integrating food-producing crops.

Reconciling the fight against poverty with biodiversity conservation

Côte d'Ivoire

The National Park of Taï (PNT), on the UNESCO World Heritage List, is the principal vestige of well-preserved primary tropical forest in West Africa. Its rich flora and threatened species of mammals, such as the pygmy hippopotamus and eleven species of monkeys, present a major scientific interest.

With the support of the French Ministry of Foreign Affairs and the Ivorian Funds for the Development of Professional Training (*Fonds Ivoirien de Développement pour la Formation Professionnelle*--FDGP), for more than six years, Pro-Natura, in collaboration with the Ivorian association *Vie et Forêt* has been developing a practical training program in agroforestry to answer the needs of rural communities who live on the periphery of the park and to reduce the pressure on its natural resources.

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The program has the goal of proposing alternatives to slash and burn agriculture and hunting within the PNT. The program is founded on the sharing of local experiences, the promotion of traditional practices and the introduction of knowledge from other parts of the world.

Since 2002, the local NGO, *Vie et Forêt*, and Pro-Natura, achieved the following main results:

- Training of trainers in agroforestry, on the use of GPS, about vegetable propagation and construction of a tree-cutting benches at the tree nursery of the project office (Taï);
- Training of 400 farmers in agroforestry, organized in 17 peasant groups led by farmers;
- Maintenance and follow-up of more than 40 collective and individual tree nurseries;
- Plantation of about 18,000 trees for multiple usages on agroforestry demonstration plots;
- Development of market gardening activities in the 7 target villages, 160 farmers trained in market gardening.



In spite of the Ivorian political crisis, we succeeded in maintaining these activities in the field, although the resident populations of the Taï National Park experienced extremely difficult living conditions.

Today, Pro-Natura continues practical training in agroforestry by integrating small animal husbandry. An innovative partnership with the company Spot Image has allowed a quantitative and qualitative assessment of deforestation. Pro-Natura also works on the development of agroforestry reforestation contracts with forestry companies who are both seeking areas to reforest and interested in applying forestry law. The Vie & Forêt/Pro-Natura team acquired certain skills in participatory project management and is ready to work in other regions in the Ivory Coast. In 2008, beyond the involvement of forestry exploitation companies, we are counting on the support of the FDPP, the French Foreign Ministry and l'Office Ivoirien des Parcs et Réserves-OIPR (Ivorian Office of Parks and Reserves) to promote reforestation of the agroforestry type in order to stabilize the populations living around the last major forest in the country.

Mrs Modeste visiting an agroforestry plot with the project Leader Jacques Ahui-Ahui.
Makoré, a multipurpose tree

Pro-Natura develops agroforestry in Brazil

In Brazil, man has profoundly affected the natural ecosystems. In the Brazilian Amazon, the forests destroyed correspond to an area equivalent to that of France. Of Brazilian origin, Pro-Natura has had a presence for over 20 years in the country and is developing several projects in rural development while depending on a vast network of local partners.

Project supported by the Cartier Group in Amapa, in the North east of Brazil

Amapa, whose capital Macapa is crossed by the Equator, is a fascinating state with many contrasts. It also has the highest percentage of protected forests in Brazil, a dense hydrographical network and a substratum rich in minerals. The Indians of the Amazon and the migrant communities primarily from the state of Para, live in isolated and difficult conditions with such problems as malaria, AIDS and water pollution. Multinational enterprises extract gold here and gold washing is practiced in the region of the Oyapock River that marks the border with French Guiana, also a border between Europe and America.

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Thanks to the support of the Cartier International Group and in the context of the Council for Responsible Jewellery Practices¹, Pro-Natura and the Brazilian association *Natureza da Amazônia* run an integrated development project for the benefit of resident populations of the National Park of Tumucumaque in the north of the Amapa state. Adjacent to the new National Amazonian Park of French Guiana, it is the largest national reserve in the world. The overall aims of the project are to improve the living conditions of the communities by proposing economic alternatives to gold washing and to promote sustainable management of natural resources. The activities of the project relate to four key domains: health, agroforestry, handicrafts and eco-tourism. With the support of the Cartier International Group, Pro-Natura organizes training on bio-jewel making for women's associations, in collaboration with the Amapa government and the *Natureza da Amazônia* association.



House of Handcraft in Macapa, a shopwindow for selling Amapa productions

Collaboration with the Brazilian Agroforester Network REBRAF

The Internet is a tool particularly adapted to the diffusion of agroforestry knowledge and techniques. In 2004, in collaboration with the Almedio Company, Pro-Natura and REBRAF developed experience booklets in order to exchange and disseminate agroforestry experiences. These files, drafted during interviews conducted in pairs, are accessible on the site www.rebraf.org.br. This work was possible thanks to the financial support of the Charles Léopold Mayer Foundation for the Progress of Man (*Fondation pour le Progrès de l'Homme-FPH*). These experience booklets about agroforestry in Brazil benefit actors in the field as well as rural development decision-makers. They help to make clear how and why agroforestry is at the crossroads of questions on agriculture, environment and development.

In brief...

Gabon: Pro-Natura led a feasibility study of a project on agroforestry training on the periphery of the only biosphere reserve in Gabon, the MAB reserve of Ipissa-Makokou. This project will begin in the second quarter of 2008.

Guadeloupe: A first tree-cutting bench was installed at a Guadeloupe farmer's; it will serve as an important basis for the development of projects aiming to conserve Caribbean agrobiodiversity deeply threatened by urbanization.

¹ www.responsiblejewellery.com