

Subject: Report on Trip to São Tomé and Príncipe

To: The Central African Regional Program for the Environment (CARPE)

The purpose for the trip to São Tomé and Príncipe by Rick Scott and Michelle Zweede was to assess environmental priorities and to better define technical and management needs. This assessment will provide the Central African Regional Program for the Environment (CARPE) recommendations on how program partners could complement existing activities and projects. Following a CARPE exploratory trip to São Tomé, several environmental issues were expressed as areas of concern and the need for a more in depth visit. This report will highlight some our observations from meetings and site visits from April 20 to April 28, 2002. First, we will give a brief introduction to the country followed by descriptions of potential partners on the island. The majority of the report will focus on the principle issues and opportunities for collaboration.

São Tomé and Príncipe is a small island country that presents natural resource agencies, NGO's and other entities concerned with global environmental issues, biodiversity, and species conservation unique and interesting opportunities to collaborate with existing projects and new initiatives. Compared to most countries in the developing world, São Tomé is a unique example of remaining levels of biodiversity and forests. The new government and current political agenda also provides unique timing for support to projects concerned with maintaining and conserving the islands' natural resources and biodiversity.

Introduction to Forests and People in São Tomé

The Democratic Republic of Sao Tome and Principe consists of two islands in the Gulf of Guinea, about 200 miles off the coast of Gabon. Discovered by the Portuguese in 1471, São Tomé and Príncipe has a landmass of approximately 1,000 Sq. Kilometers (850 sq. for São Tomé and 140 sq. km for Príncipe). The two volcanic islands are characterized by extremely rugged terrain with elevations up to 2,024 meters and extreme fluctuations in rainfall. The combinations of these characteristics have supported different biotopes including the home to 25 species of birds (including 5 endemic genera) and over 800 plant species of which 120 are endemic.



Figure 1: The Obo National Park on Sao Tome

According to the Department of Forests and local NGOs, the remaining forests on the island comprise of three categories and cover 90% of the island territory. The three major forest categories: The “Obo” or virgin forest which lies within the proposed national parks, the secondary forest or “capoeira” are comprised of abandoned plantations that have reverted back to native vegetation cover 31% of the island, and the shade forests which provide shade to the key agricultural crops.

The Obo National Parks, totaling 300 sq. km., include examples of all the different biotopes – the lowland and mountain forests, mangroves and a savanna area. Due to physical and economical inaccessibility, about 28% of the natural forests on both islands remain untouched.

Agro-forestry formations exist also in the cocoa and coffee plantations, where old trees have been preserved and *Erythrina* sp. was been planted as shade trees and nitrogen producers. Shade tree management is necessary for crop husbandry purposes, and the shade forests have been maintained by the government and private companies for the coffee and cocoa plantations. Even though the lower elevations of the island (below 600meters) have been intensively managed for agriculture (coffee, cocoa and vegetables), the forest areas are relatively free from industrial forestry and row crop agriculture pressures that often dominate other countries landscapes. There are sawmills on the island but they appear to be small and the wood products are utilized locally. Most wood on the island is used for producing timber and for fuel. According to a World Bank appraisal report, the forestry sector said that an estimated 5,400m³ was produced for sawn wood and 170,000 m³ cut for cooking and cocoa drying. The consumption of fuel wood is larger than the country can afford to avoid degradation of its natural resources. Today there is more incentive to build houses and make furniture due to the change in

Since 1995, the government has worked on a plan to privatize the large and medium size plantations. In this last phase of privatization, many residents on the large plantations have received 1.5 ha. plots of land for cultivation. Currently, there is increasing pressure on secondary forests and the commercial valued shade trees on the cocoa and coffee areas. In the past the government paid a monthly salary (\$120/mo.) to workers on the state run plantations so now there is no salary and much pressure on the commercially valued trees. According to ECOFAC, today, 50% of wood used for construction, furniture and fuel comes from the shade forests. The most intense pressure exists in the northern part of the island where there is also charcoal production.



Figure 2: Secondary Forests

It was stated that the population of Sao Tome is one of the fastest growing populations in Central Africa. The concerns about population pressures and lack of a national resource management plan were main topics discussed during our visit. Three concerns were repeated: The lack of “managers” and trained natural resource specialist to develop and implement integrated resource plans, increasing population and the discovery of oil. Each of these issues could present real threats to the long-term sustainability of the island’s tropical forest if not managed properly. The discovery of oil off of the coast of Sao Tome poses direct and indirect impacts to the island. Oil spills could easily harm the

coastal resources. Increased wealth and growth on the island if not well planned and implemented could alter the islands vegetation, wildlife and water.

Government Agencies and NGOs

There were four agencies and NGOs that appear to have significant roles to play in the development and protection of the forests of Sao Tome: The Secretary of the Environment, the Forestry Department, ECOFAC and StepUp.

Ministry of Environment - Mr. Arlindo Carvalho, Director

Mr. Carvalho spoke of developing an integrated land use plan for the island and this plan should be ready within a few months. This plan was mentioned several times and seems that it will drive much of the short and long term actions of the government and NGO natural resource management programs. The new government's administration is focusing on preparing an overall national plan and the priorities are zoning, sustainable use of natural resources and biodiversity conservation. Management plans for the park and secondary forests including a reforestation program for the secondary forests and shade tree areas seemed to be a priority for the Ministry. An example of a zoning concern is where the buffer zone or transition area around the OBO park meets the protected area. When visiting the area, we saw the pressures caused by the small farmers encroaching on the protected area. The farming is getting very close to the edge of the primary forests and there is use of pesticides and the diversion of streams. The farmers diverge streams to meet the needs of the crops.

During the rainy season streams are moved/diverted away from the crop area to the trail used to access the park. Specific issues and recommendations for cooperation will be addressed following the NGO and Government Agency overviews.

Forestry Department – Filipina Rocha, Director

The Forestry Department is divided into three units: monitoring and control (enforcement), silviculture or management of areas of production, and biodiversity – forests and areas of conservation. There are only two



Figure 3: Buffer zone around the Protected Area

foresters and eight forestry guards working for department. The Department is responsible for all forested areas and collaborates with ECOFAC to insure the protection of the park. There is a nursery and a reforestation project that the GTZ began several years ago that the Department now manages.

During our meetings, we asked about size and hectares of forests. The question was easy to answer, but we were told that since the land distribution program (described above) no one knows what has been distributed. The distribution effort is ongoing but is not being documented so the Forestry Department has no data on (i) how much land is to be distributed, (ii) how much has already been parceled out, and to whom, and (iii) how much forest exists in the affected shade and secondary forests.



Figure 4: National Nursery

Therefore, Forestry Department is anxious to find ways to work with farmers and new landowners to replace the commercially valued trees that are cut. They have tried to work with local farmers by providing them with trees from the nurseries but the concern is that they aren't reaching enough people with such a small staff and little transportation. Short-term goals for the department are to improve the national nursery, build a database for tracking permit information pertaining to volume and harvest location.

In addition to the small size of the department, there is also a lack of training and capacity. Training and capacity building is needed in order to enforce forestry laws, to design and implement a forest plan, to provide extension to smallholders and to monitor change in areas that are at risk for conversion. The forest management plan is one of the major goals of the department. Although there is very little data about the forested areas and few technical resources, a forest management plan will be needed to complement the national plan.

***ECOFAC (Conservation Et Utilisation Rationnelle Des Ecosystemes Forestiers En Afrique Centrale* - Mr. Salvador Pontes, Director; Mr. Stephan Cocco, Coordinator**

ECOFAC an NGO funded by the European Union is a primary proponent of the national park for the protection of the remaining virgin forests. Mr. Stephan Cocco (general coordinator) and Mr. Salvador Sousa Pontes (national director) manage ECOFAC's activities on the islands. In addition to Sao Tome and Principe, there are six countries in Africa where ECOFAC (*Conservation Et Utilisation Rationnelle Des Ecosystemes Forestiers En Afrique Centrale*) has programs. The ECOFAC Program for Sao Tome and Principe began the first phase of its projects in 1992. Beginning with the identification of projects following with the implementation of the projects and ending with valorization of the projects.

The main focus of ECOFAC's work has been the Obo park and protected area along with the buffer zone that surrounds the park (mentioned above). Activities surrounding the park are related to biodiversity studies, Flora and Fauna studies (botanical garden, national herbarium) and ecotourism development. The native flora and fauna of the islands in the Gulf of Guinea are of great scientific interest: twenty five species of bird, some 30% of the resident species on Sao Tome are endemic and over 800 plant species including 120 endemic ones. . At the entrance to the proposed park ECOFAC has established an arboretum displaying a variety of endemic plants.

Their short-term goal is to establish and map the boundaries of the park. The Director has recently purchased several GPS units (Cyber tracker) to assist in this effort. ECOFAC has six guards that they employ at a wage considerably higher than the prevailing wage for Sao Tome. They will begin this process in September. In addition to the work that ECOFAC does around the park, they also work closely with the Forestry Department providing some funds for salaries and transportation. The Forestry Department will also work closely with a forestry consultant, provided by ECOFAC, on the forest management plan.

ECOFAC is in the third phase of their plan of work and their future is not certain at this time. The director and others indicated that it would be unlikely that ECOFAC would withdraw from Sao Tome at this point in time. The plan is to create a new local NGO called *Reseau des Aires Protegees d'Afrique Centrale* (RAFAC), which would be a more permanent organization in Sao Tome. ECOFAC's long-term goal is to increase the size of its workforce, implement the park and implement controls and regulations within the park to protect and preserve the biodiversity found within the park.

Sao Tome and Principe Union for Progress (SteP Up) – Ned Seligman, Director
SteP UP works in Sao Tome and Principe with grassroots-level organizations that are promoting the principles of self-help development. The projects focus on education, training in agriculture, the environment, health, and income-generation. After Peace Corps withdrew from the island, the former director decided to create an NGO to follow up on and fund new community development projects. Volunteers are recruited for a variety of community development programs funded by grants and donations. STeP UP's long-term objective is to strengthen the NGO sector in Sao Tome. STeP Up can facilitate much of the interaction that needs to occur to insure a strong strategic approach to community and natural resource development in Sao Tome.

Recommendations for Possible Collaboration

After visiting and meeting with several NGOs and government agencies and discussing natural resource issues confronting the country, we saw some major overlapping themes. Our recommendations below are all related and could serve as an opportunity to include many of CARPE's partner organizations. The forestry sector was the focus of the trip, but during the visit we began to see other needs. There couldn't be a more unique time or

place where CARPE could bring together partners to support new initiatives such as the national land use plan, forestry management plan and the on-going land distribution program.

Land and Forest Management Plans

There is a tremendous opportunity for the agencies and the NGO's to integrate their long-term goals and objectives for the benefit of the people and natural resources of Sao Tome and Principe. Currently there is no land use management plan for the country. Since the government has distributed public land, the cultural structure of the plantations has changed and the forest resources on those lands are being used unsustainably. The government's initiative to create an integrated land use plan can serve as the basis for and the integration of other agency objectives into a common national environmental protection, conservation, and sustainable development strategy. ECOFAC has already been providing technical support to these government agencies, and a forestry consultant will be working with the Department of Forestry to elaborate the forest management plan. The Department of Forestry's long-term objectives were less clear but management of the shade tree and secondary forest will be an important segment of any long-term forestry and environmental strategy, and ECOFAC clearly sees the relationship between the Obo National Park and other forested areas in São Tomé.

The U.S. Forest Service could provide technical assistance to the Forestry Department in addition to the support ECOFAC has already provided for the elaboration of the forest management plan. During the process of coming up with a plan, more questions and opportunities will arise for further assistance. It is critical that a plan incorporates the primary, secondary, shade forests and the transition areas where existing plantations meet the parceled out plots of land and the plots border the protected area.

In addition, there are few maps that exist of the island and natural resources. Opportunities exist to establish an island wide GIS system and database and to use aerial photography to map the vegetation. The images could come from satellite imagery and would be corrected for elevation differences so that accurate area measurements can be made. They would be black and white images that could be used to observe, type and measure vegetative cover of both islands. There would be 5 strips of information each being 5 Km wide and 37 Km long. The images have not been down loaded yet so they would be very current. These photos would be beneficial to the Forestry Department and/or ECOFAC to provide baseline data and to begin monitoring the forest vegetative type and cover. Most importantly, this would be an asset to the new forestry management plan and future resource planning needs.

Community Forest Management (forestry and agriculture activities)

According to the Forestry Department, the medium and small farmers on the privatized lands are in need of agriculture and forestry extension. The national nursery could provide the communities with seedlings to replace the harvested ones. The harvest of these shade trees will have an affect on the cocoa trees, which are the economic base for most farmers and the government of Sao Tome. This extension support and reforestation efforts are not activities that government agencies can currently support provide to communities. During our visit, local organizations and government agencies mentioned that Peace Corps could play a supportive role in these communities. This would be a perfect combination for community development and natural resource Peace Corps Volunteers to fill that gap in human capacity/resources and to provide extension work to farmers – reforestation and cocoa growing technology. The long-term opportunity lies in CARPE's ability to bring a multi-agency effort to the island. CARPE could work with ECOFAC, STeP Up could work with the Sao Tomaen government agencies to develop a proposal for the Peace Corps to establish a rural community development program based on forestry, park management, eco-tourism and agro-forestry. The Forest Service and Peace Corps could provide technical assistance for such a proposal. In addition the Forest Service could provide technical training and support to Peace Corps volunteers stationed in Sao Tome. Such an effort needs to be long term and integrated into the Central African regional effort.

Training and Human Resources

There are several short and long term opportunities for CARPE to become involved with Sao Tome. Potential short term areas of collaboration and technical support are: Participate with ECOFAC to hire and train additional eco or forest guards this year, assist the Forestry department with the design and improvements of the national nursery, purchase additional cyber trackers for ECOFAC and the Department of Forestry, USFS provide advisors or consultants to participate in sustainable forest management training or to assist in natural resource management development and monitoring.

An opportunity exists to develop and implement an effective permit process and monitoring system for harvests outside the protected area. A specialist could share various methods used to permit harvest and assist with developing a system that fits within the cultural, economic needs of the country. In addition, training in basic nursery management and operation including reforestation is needed so that Sao Tome can maintain the forests that they have and add value to the shade forests on private and public lands. Reforestation of degraded and shade tree forested areas would add value to the privately owned lands and increase public awareness around the importance of reforestation.

A long-term strategy to train and develop natural resource technicians that can work in agro-forestry, forestry, park management, sustainable rural community development, and environmental education could be developed which would lead

to greater capacity within the São Tomé government to deal with pressures of privatization and oil revenues.

Agriculture Extension Support

Plantations, small household plots and Forests overlap each other in most cases. The critical areas are those where the two interfaces meet. Since cocoa has been and will be the economic base for São Tomé there is a need for agriculture extension support to privatized areas. During the privatization process, the plantation workers were given up to 10ha. of land on the cocoa plantations. In the past the plantation system was managed from the top down and the workers had little involvement in the actual management of the cocoa. The most critical areas are around those large plantations that were owned by the state and lands have been distributed to the plantation/state workers. The landowners are cutting down the commercially valued trees to build their own houses and sell the 80 year old tropical hardwood trees that were planted to shade the cocoa trees and protect them from diseases associated with too much or too little light.

Currently there are a few NGOs that work with communities and small landholders. These NGOs are providing agricultural credits and incentives to the small farmers that have their own land for the first time.

During our visit, the agriculture NGOs expressed similar visions that the forestry department mentioned concerning Peace Corps Volunteers as a resource to support community agriculture and forestry. There is a tremendous need for training and support in cocoa and coffee crop management. The other issue is the marketing and processing of cocoa. Today the small farmers are still gathering the cocoa but they are not drying the beans themselves. They get a low price for (massa) wet beans, which they sell to the medium size plantations. Then those plantations dry the beans and sell them to the larger Portuguese owned plantations. Not only could the beans be sold for a higher value at the smaller landholder level, there could also be more incentives for multi-crop rotations and higher valued crops such as vanilla or pepper.

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Trip Agenda

Monday 25, 2002

We arrived in Sao Tome and Principe and began the afternoon with a meeting at ECOFAC to discuss forestry issues on Sao Tome and the agenda for the week.

Tuesday 26, 2002

General overview meetings

- Arlindo Carvalho, Secretary for the Environment
- Minister of Agriculture and Directory of Forests
- Zatona
- PNAFAF
- ECOFAC and Directory of Forests

Wednesday 27, 2002

- Field visit to Sao Tome's protected area - Lagoa Amelia (AM)
- Henrique Pinto da Costa – overview of environmental history of SteP, including privatization of land.

Thursday 28, 2002

Meeting with Rick to gather notes and info from meetings (AM)

- Meet with Ned about Step up (PM)
- Discussion on priorities and long and short-term objectives for ECOFAC
- Meet with Stephan and Salvador (PM)

Friday 29, 2002

- Field visit to secondary forests and shade tree forests (nurseries, reforestation efforts)
- Meeting with the Directory of Forests (Filipina Rocha, Hamilton, Pascoal) in depth discussion of their priorities and long and short-term objectives.
- Meeting with ECOFAC to outline ideas for projects and proposals

Saturday 30, 2002

- Field site visit to the northern areas of Sao Tome (charcoal production)
- Visit to cocoa plantations and communities
- Wrap up meeting with Stephan Cocco