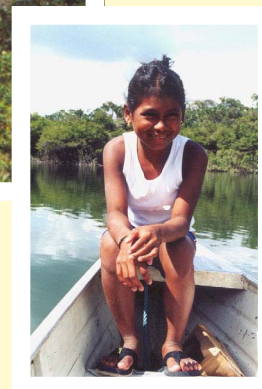




Solar Electric Light Fund

Powering a Brighter 21st Century

PROJECT PROFILE



Xixuaú-Xipariná Reserve Roraima State, Brazil

In a first-of-its-kind project, the Solar Electric Light Fund (SELF), teamed in early 2002 with the Associação Amazônia (Amazon Association), a conservation and sustainable development NGO based in Brazil and Italy, to bring solar power and broadband wireless Internet access to the isolated Xixuaú-Xipariná Ecological Reserve in the heart of Brazil's Amazon rainforest.



In addition to an OnSat satellite dish, the new solar panels today provide electricity for refrigerators for vaccines and snakebite antivenom; a medical diagnostic device that can upload information to the Internet for use in telemedicine; new computers and lights at a school for local children; and a pump to deliver fresh water from the Rio Jauaperí. Previously, power needs at the Reserve were met with an improvised — and unreliable — combination of kerosene, diesel, and wood. Making use of the Internet or e-mail meant a forty-



We think the project will revolutionize life here in the Reserve. It will mean that opportunity can come to us, rather than us pursuing it somewhere else. We can stay rooted in this place and community that we cherish, and not give up the chance for our children to be educated, or to receive good health care when they fall sick. There is strong pressure on native people to become part of a culture that treats nature as just a treasure chest to be plundered. This gives us the power to hold to our own values.” — Joao Soarez Gomez, Village Elder



A tree sloth.

hour boat ride to the nearest population center, the city of Manaus.

THE AMAZON ASSOCIATION AND THE XIXUAÚ-XIPARINÁ ECOLOGICAL RESERVE

The Amazon Association is a group of Caboclo Indians and

friends who have joined forces to preserve the lands and cultures in and around the Xixuaú-Xipariná Ecological Reserve.

The Reserve spans the area between the Xixuaú and Xipariná rivers, tributaries of the Rio Jauaperi in north central Brazil, about 450 kilometers northwest of the fast-growing frontier city of Manaus.

Within the Reserve are 172,460 hectares abounding in unusual species including endangered giant otters, manatees, pink dolphins, black caymen, pira-



The mouth of the Rio Jauaperi.

rucus (one of the largest freshwater fish in the world), harpy eagles, jaguars, spider monkeys, and giant anteaters. A recent agreement with the Brazilian government's Instituto Brasileiro do Meio Ambiente (IBAMA) foresees enlarging the Reserve to approximately three times its current size.

The Amazon Association has several interlocking goals in the Reserve:

- ✧ *Preserving the integrity of the area's ecology and biological diversity.*
- ✧ *Supporting the culture and wellbeing of the local people, and their role as environmental stewards, by developing sustainable means to address vital needs for health care, education, and economic opportunity.*
- ✧ *Advancing the scientific inventory and study of the region's flora, fauna, soil, and climate.*

In pursuit of these goals, the Association has undertaken several initiatives. For example, a school was developed for the 70% of the area's population that is under age 15, with basic instruction in language, mathematics and art, along with health and sex education.

Additionally, a health clinic has been created, letting area residents obtain routine and emergency medical care that was previously 20 hours away by speedboat (and 5 days by canoe). The clinic is



An egret in the Xixuaú-Xipariná Ecological Reserve.



The tucunaré, a popular food fish.

staffed by a trained nurse who provides emergency first aid, identification of malaria, parasites and other diseases, aid in childbirth, and other services.



Transporting solar panels and other equipment upriver to the Reserve.

Although both the school and health clinic represented substantial strides, the Amazon Association knew that further progress would demand dependable electricity to power modern information and communications technologies. But because of the remoteness of the Reserve, connection to a grid was financially untenable. Moreover, the transmission wires would knife through pristine forest.



Offloading the vaccine refrigerator.

Nor were diesel generators a solution. The small generators already in use were constantly breaking down or running short of fuel, to say nothing of belching acrid smoke, and disturbing forest animals with their deafening noise.

Solar photovoltaic power presented an



Assembling the satellite dish.

energy option that would be dependable, clean, quiet, and cost-effective, and the Amazon Association turned to the Solar Electric Light Fund (SELF) for help.

PROJECT IMPLEMENTATION

SELF determined that by making highly energy-efficient choices for the devices the solar system would power — chiefly computing equipment, a satellite dish, a vaccine refrigerator, a medical diagnostic machine, and lights— the Reserve's electricity needs could be met with an affordable 1-kilowatt array. SELF shipped the solar and other equipment first to Manaus, and then the challenging 40 miles upriver to the Reserve's main village.

Once everything was offloaded, setup work began in earnest, coordinated by Robert Freling, SELF's executive director, with assistance from Jorge Anhalt of IDER, a Brazilian NGO that SELF teamed with on an earlier solar project in the coastal state of Ceará. Configuration of the satellite dish was



Setting up the solar photovoltaic panel array.



Sending a first-ever e-mail.

overseen by Kuen Damiano of OnSat Network Communications, a company from Salt Lake City Utah.

As in every SELF project, heavy emphasis was placed on training local people in techniques of installation, maintenance, and troubleshooting, to ensure that the equipment in this very remote

locale will continue in good working order long into the future. A benefit of the Internet access made possible by the project is the ability of Reserve residents to get technical support from SELF in Washington, D.C. if problems arise that can't be solved locally.

PROJECT IMPACT

The Xixuaú-Xipariná project marks the first time that solar-powered satellite Internet access has been brought to a remote part of the Brazilian rainforest, and exemplifies how wireless power



Students at new Internet-connected computers.

and wireless communications can help developing nations leapfrog to state-of-the-art information and communications technology. With an Internet connection and the ac-

companying new computers, Caboclo young people and adults can now obtain high-quality education without leaving the Reserve. Opportunities can be pursued for eco-tourism, and e-commerce involving local handicrafts. Better health care can



Using a new diagnostic device.

be secured through Internet-enabled telemedicine. And ecologists and biologists doing research in the area can more readily communicate their findings to their home institutions through e-mail and the web.

Beyond these communications applications, the new solar array provides power for lights in the schoolhouse, a

refrigerator for perishable vaccines and medicines at the health clinic, and a pump to draw fresh water from the river.

All this, it is hoped, will help ensure the long-term health and thriving of the Xixuaú-Xipariná Ecological Reserve and — as important — the Caboclo people who have always been an integral part of this altogether remarkable place under the sun.



Caboclo Indians and visiting technicians.



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