

ENERGY FOR LIFE BEST PRACTICE PROJECT

System / Location

Pilot Project of Xapurí – The sun energy illuminate Acre / Brazil



Recently Eletrobras and GTZ (German Society for Technical Cooperation) announced an international technical cooperation to supply rural areas with renewable energy in the framework of the programme “Luz para todos” (Light for all). The programme includes measurements for isolated areas in the Amazon region. The Pilot Project of Xapurí is the first project within this agreement and was developed by the state own energy enterprise “Eletricidade do Acre” in cooperation with Eletrobras and GTZ. A total of 103 Solar Home System (SHS) were installed in 3 rubber tapping communities in the rubber tapping reserve (ResEx) Chico Mendes in the municipality of Xapurí.

The project tested 3 types of SHS to evaluate which one would be most adequate. Additionally a maintenance and finance system was developed to ensure the continuity of the project. The project provides employment for 2 inhabitants in each community. All beneficiaries were involved in the financing to pay the employees and the necessary spare parts such as batteries to save the energy (<http://www.ufpa.br/inct-ereea/EletrobrasXapurí.pdf>).

Planning/Installation

Eletricidade do Acre (Eletrobras distribuição Acre)
www.eletrobras.com
GTZ www.gtz.de

Donation/Support

Programma Luz para todos (Ministério de Minas e Energia, MME)
<http://luzparatodos.mme.gov.br>

Operator

Eletricidade do Acre (Eletrobras distribuição Acre)
www.eletrobras.com

PROJECT DATA SHEET

Year the installation started operating	2007
Type of system	Photovoltaic - Solar Home System
Type of energy produced	Electricity
Location	Brazil, Acre, ResEx Chico Mendes, communities Iracema, Dois Irmãos, Albrácea
Geographical position	Latitude -10,636, Longitude -68,4946
Size of installation	1 m ² (each system)
Power of installation	3 x 85 Wp (each system)
Use of energy produced	Light, refrigeration
Quantity of energy produced per day	0,5 kWh in Iracema, 0,53 kWh in Dois Irmãos, 0,6 kWh in Albrácea (estimated)
Type of financing	Grant
Source of financing	Eletricidade do Acre, Eletrobrás, Governo do estado Acre
system investment cost	Alternative current system: R\$ 7.600,00, (USD 4400) Hybrid system: 7.100,00 R\$ (USD 4100) Continuous current system: R\$6.600,00 (USD 3800) (15 kWh/month), R\$5.400,00 (USD 3100) (13 kWh/month)
Maintenance cost per year	R\$ 498,00 (USD 288) per family
Fossil fuel savings per year	Reduction or elimination of the kerosene consumption, substitution of fossil fuel for recharging of batteries
CO2 reduction per year	No determined
Number of beneficiaries	103 families (est. 500 persons)
Presence of renewable energy country programme	yes



ENERGY FOR LIFE - BEST PRACTICE AWARD 2011

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LEGAL FRAMEWORK

The state energy enterprise Eletrobrás and the GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) agreed to a technical cooperation in 2005. The programme includes the following action lines: development of sustainable models for rural electrification with RE; preparation of public politician proposals and regulation for the use of RE; capacity building for the executive agents (agentes executores) to expand and spread out the utilization of RE.

FEASIBILITY, SUSTAINABILITY AND REPLICABILITY

The clear tangible impact for the target group is the creation of jobs for 6 inhabitants in the ResEx. Also the energy supply to conserve perishable foods for a longer time, and to offer the people more time for learning and for working after sunset. The multiplier effects could be enormous. In the Amazon region numerous indigenous and traditional groups are living in inaccessible areas. There demands of energy supply are growing up and until today one of the Brazilian solutions was the connection to the public energy network. However, in many parts of the country, this strategy is too expensive or the need for protection of the environment (primary tropical forest) leads to conflicts between the improving the people's living conditions and the preservation of the valuable ecosystem. Furthermore many SHS are already installed in less developed regions without an appropriate capacity building, finance or maintenance systems. Today these systems are unusable. The direct involvement of the target group in the financing and maintenance in combination with an adequate education promise a sustainability of the project. These points: an easy and low cost energy supply, the finance and maintenance of the system, the job opportunity and the involvement of the political framework make the multiplier effects very promising.

SOCIAL IMPACTS

Improvement of living conditions by freeze or refrigerating perishable foods; the use of light every night for learning and additional work; income generation for 6 persons; protection of the tropical forest since there is no need to cut trees to build transmission lines; reduction of CO2 emissions.

FINANCING AND FINANCIAL IMPACT

The pilot project has an external financing but the target group was involved in the financing of the maintenance. Also the education for the maintenance will lead to the sustainability of the systems. Future projects have to identify financing methods through the target group.

ADDED VALUE

Rubber tappers are a traditional group in the Amazon region. Over time they learned to live with the ecosystem without damaging it. They have developed the ability to adapt the indigenous knowledge to economic activities. Their knowledge about the ecosystem is ground-breaking in terms of the understanding of the ecosystem and sustainable development in general. But this group remains marginalized and poor. Without an adequate development including education, health care and minimal energy supply, this knowledge and wisdom will be lost forever.

