

## Demonstration of low carbon solar home systems and afforestation in Qnafna

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| <b>Project #:</b>        | ERI/SGP/OP5/Y2/CORE/LD/2012/07  |
| <b>Grantee:</b>          | Qnafena Community Development   |
| <b>Location:</b>         | South Eastern 90 Km from Asmara and 22 km from existing electric grid line  |
| <b>Project type:</b>     | Strategic   |
| <b>SGP Contribution:</b> | USD 149,998.00  |
| <b>Co-financing:</b>     | USD 174,550.00  |
| <b>Project duration:</b> | 4 years   |
| <b>Beneficiaries:</b>    | Direct beneficiaries 1,380 people & indirect beneficiaries are - 15 villages who are benefiting from Social services of clinic and schools. |
| <b>Focal area:</b>       | Climate Change/ Land degradation  |

### Context

In Eritrea and particularly in Qnafna community of Debub region, low and unreliable access to electricity, characterized as high usage of kerosene lamps, dry cell battery and wax candles in households and social service centers. Open fire is also used in many conditions. Kerosene consumption for lighting in rural households of Eritrea is about 3litres/month. It costs about 60ERN/Month if acquired from fuel station; otherwise, the households

pay at least 60% more if bought from kiosk retailers which is very expensive. Dry cell battery and wax candles are even more expensive than kerosene. Moreover, kerosene lamps are inefficient, unhealthy, and dangerous for the users (soot and fire hazard). The kerosene lamps result a significant consumption of limited global petroleum supplies and a source of greenhouse gases (approximately 87 kg CO<sub>2</sub> emission per year/per lamp). Poor rural villagers, who often earn only \$1.50 per day or less, had no modern energy alternative to the widespread kerosene lamp. These kerosene lamps cannot satisfy the needs of rural people. The fact is that people use kerosene lamp, the cost takes a greater part of their budget; it is risking to their health and safety, and the service is poor.

As Eritrea is located in sub-Sahara Africa, it is exposed to more than 320 sunny days per year. Thus, the government is encouraging the promotion of solar energy services to remote and poor areas of the country mainly focusing on off-grid areas, which Qnafna area is one of them.

In Qnafna Community there are 1380 people; they rely mainly on subsistence agriculture. There is one health station serving for communities of 15 villages and an elementary school serving for pupils from 7 villages; in addition to this there is office of administrative center, a Church and Mosque, which the project has focused to solarize them.

The Qnafna Community Development (QCD) was found in 1999 by members of the Qnafna community in Debub Region with the aim of implementing rural development projects within its own

environs. Since its establishment, it has implemented more than 5 projects of social services like feeder roads, elementary school, a clinic, administration center including soil and water conservation activities.

QCD mainly mobilizes funds from its own community members in Eritrea and members residing abroad. In addition the community development has benefited from government and development partners.

**The Specific objectives of the project were:**

- i. Provide better, healthy and affordable illumination to households of targeted communities thereby supporting home based income generating activities;
- ii. Improve the delivery of educational services and enhance the living conditions of the school teachers through the provision of solar PV based power;
- iii. Improve the delivery of health services to the targeted communities by providing solar PV based power for refrigeration, and general power services;
- iv. Train beneficiaries on installation, usage and cautious measures on basic maintenances of the solar home system;
- v. Increase awareness of the rural community on environmental issues in order to improve environmental quality through Soil and water conservation and reforestation.
- vi. Promote self-help skills among the communities.



The community's expression of joy while receiving the solar PV system



Quality Assurance by technicians & project stakeholders

**The project has addressed the following energy needs:**

- 1) 252 households, or 1380 persons, got better illumination from solar home systems. Better illumination has improved the study of children in their homes. Battery chargers for mobile telephone and power for radio availed. Households' access to educational, health and other information through the media has improved, and the information gap narrowed;

- 2) Residential quarters of teachers of the school got better light for preparing the lessons they give to their students;
- 3) Social services of a school, a clinic, administrative center, the church and a mosque got better lighting to work even during the nights. The delivery of health services improved through provision of solar PV based power for refrigeration and general power services including child delivery.
- 4) Orientation course provided to beneficiary households helped operate the system safely;
- 5) Formal training to four members of the community on the maintenance and repair of the system helped for safe handling and continuity of the system.

To ensure the sustainability of the project, an orientation course has been given to all households on how to use the system and most importantly a formal training was given to four members of the community for the repair and maintenance of the project.

Moreover, an arrangement of payment to every household for the energy services they get is made on monthly basis, which is crucial for the sustainability of the project.

Contributions in kind made by the community mainly focused on another major component of the project related soil and water conservation and afforestation activities of indigenous trees in 40 hectares of land, which the survival rate of the seedlings have been over 80% and 15 Kms feeder road rehabilitation. Moreover, with the support of Water Resource Department, Ministry of Land Water & Environment; Ministry of Local Government and Red Cross & Crescent Society of Eritrea; the communities of four villages including Qnafna are able to get services of solarized water supply system.

The communities have greatly appreciated the services and they are delighted with the significant support provided to them by GEF-SGP and its partners.

### **Policy Impact, Replication and Scaling up:**

The project, “Demonstration of solar home systems and Afforestation in Qnafna” funded by SGP, was replicated/up scaled by government together with UNDP in two sub-regions of Anseba region; namely Hamelmalo and Habero sub-regions: The proposal on solar initiated by the Qnafna Community Development, SGP Grantee, was taken as a model for the purpose.

As a result, a total of 750 households in villages called Ajerbeb and Habero-Tsada including the irrigation system in the project area are currently solarized. In addition, 110 Ha of land is forested with fruit trees and other indigenous tree species.

With the replicating/upscaling of this project, 1002 households in total have become beneficiaries of solar home systems and 150 Ha of land is forested.

The same project of Demonstration of solar home systems and afforestation in Qnafna has strongly influenced the government’s policy by encouraging the promotion of solar home in towns and sub-towns in the country.

His Excellency, the Minister of Energy and Mines and his work colleagues had visited the Solar home system project in Qnafna sub-town and consequently, individuals or groups in towns and sub-towns are encouraged to procure the solar home system from abroad with nominal payment of customs duty. UN Staff members in Eritrea, for example, have collectively procured solar home systems with minimum customs duty.

A full-size project jointly funded by EU and UNDP is currently underway in Debub Region.



During the handing over of solar home systems equipment to the beneficiaries in Qnafna:



Find below link of another coverage of the project in UNDP website-

<http://www.er.undp.org/content/eritrea/en/home/ourwork/environmentandenergy/successstories/eritrea-kicks-off-low-carbon-solar-systems-for-rural-homes-in-qn/>

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