Andean Solar Villages – Project Note *by Yolanda Ortiz*

Collected fire wood is the principal source of energy in most of the Andean villages in the Argentine-Chile-Bolivia triangle. Increasing energy demands of the local population is leading to progressive and accelerated desertification in this semi-arid mountain region. This high plateau called Altiplano or Puna represents a highly vulnerable ecosystem that is essentially endangered by this development. It takes the widespread Tola scrubs several decades to grow to their full height of maybe 1.5m. Rooting them out is common practice. Using Tola as fire-wood thus means burning scarce biomass resources and thus destroying valuable carbon sinks. The thinned out soil offers wind and water a big contact surface for erosion. Further desertification of the Puna could end up in total collapse of the ecosystem.

To present a suitable alternative for cooking, Fundación EcoAndina based in Salta in Argentina successfully introduced parabolic solar cookers in the region as one part of the broader Andean Solar Villages concept. The latter, being an integral concept, comprises not only multiple types of thermal energy to meet the demands of the local population, especially heating of buildings and water, but also tries to re-cultivate old Inca terraces by applying PV powered drip irrigation systems.

In the first step of the proposed project activity, only the solar cooker component of the Andean Solar Villages concept is being linked to the carbon market to allow for wider dissemination of this adapted solar technology in the region. All prior pilot projects were financially dependent on donations and subsidies, as solar cookers are not affordable by the local indigenous population.

Project activity, location and technology

The project consists of the implementation and application of 50 solar cookers by private users in several villages in the Argentinean Puna around the village of Misa Rumi, located in the North-Western Argentinean province of Jujuy.

Using these cookers, the local villagers will shift away from the unsustainable use of biomass. They will save a lot of time by not collecting wood and the local ecosystem will be protected. Above all, carbon emissions from wood combustion will be prevented.

The solar cookers are purchased by local villagers based on the expectation the villagers will be repaid by a kind of bonus of 20-50€ per year, depending on the individual use intensity of the cookers, so 'carbon credits' will be directly distributed to the users. With this, the solar cookers will be affordable.

The amount of cooker use will be measured individually for every cooker. This is accomplished by SolCoDat, an innovative monitoring device. This marks a great step forward for projects that have many and widespread users, which have been depending so far on imprecise monitoring methods like random sampling etc.

GHG Mitigation potential

Baseline calculations are based on the assumption that a suppressed demand for LPG cookers exists. This corresponds to the official draft baseline and monitoring methodology AMS-I.E as proposed by the Small Scale Working Group assisting the CDM Executive Board of the UNFCCC. It is also consistent with the common observation that the few wealthier households in the Puna use LPG for cooking and sometimes also heating.

We expect an average of some 2.5 tonnes of CO_2 emissions to be avoided annually by each cooker, resulting in about 125 tonnes of CO_2 emissions annually for the whole project. As for lifetime of the project, we expect the cookers to be used for at least 5-10 years.

Sustainability

The proposed project activity contributes to sustainable development in manifold ways, one of which is of course the mitigation of GHG emissions as described above. In a broader ecological sense, the protection of the Puna as a whole should be mentioned here. This project can serve as a demonstration of the suitability and marketability of adapted solar technology. Its further dissemination could contribute to the prevention of further dissemination of LPG use or even of large and ecologically dangerous projects like building a natural gas pipeline to the Puna for the purpose of serving people's thermal energy needs.

The quality of life of the local population is significantly improved, as long-distance walks with heavy loads of fire wood carried on the back will be avoided particularly for women and children who usually do this work. Children will be able to use the saved time for playing and studying.

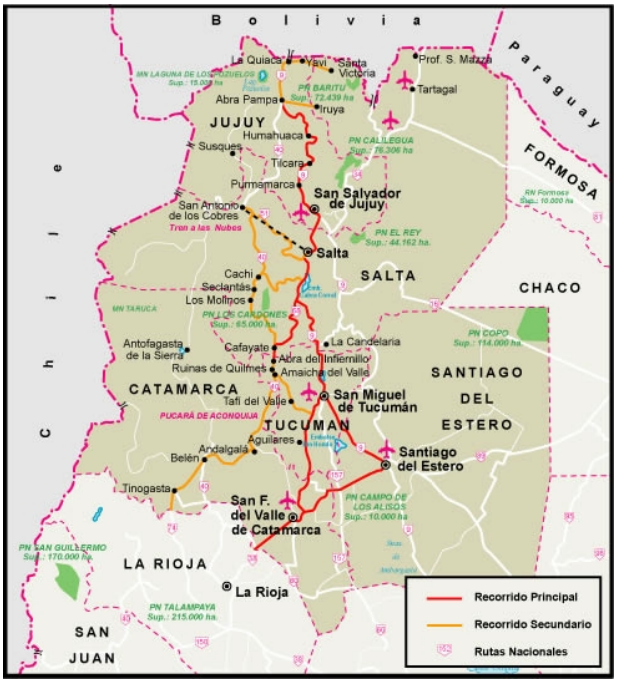
As for the technology, the solar cookers have been shown to be very well accepted by local people. Their proper operation and care is assured through intense and adequate user training. The technology is simple and solid, easy to repair and well proven in the region.

Project participants

The project was designed and will be coordinated by Fundación EcoAndina, an experienced Argentinean NGO that has been developing the Solar Andean Villages concept for more than ten years and has successfully implemented several pilot projects in the area. Consulting and development is undertaken by enveco GmbH from Münster in Germany.

The cookers are manufactured by PIRCA in Tilcara, Argentina, an indigenous cooperative with long-term experience in adapted solar technology.

The Argentinean NGO CAMBIAR (Centro Ambiental Argentino) concerns itself with institutional contacts and promotion to foster dissemination and a broader acceptance of the Andean Solar Villages concept by the public as well as in the relevant administration levels and units.



Map of the north east of Argentina

Project Status

Currently, 40 orders have been accepted for solar cookers from the villages of Lagunillas de Farallon, Rinconada, Paicone, Cienaga, Oros and Cabreria. These are being produced by the PIRCA factory in Tilcara.

It is expected that 50 cookers will be sold by October 2007. Delivery and installation of the cookers, as well as user training should be completed by November 2007. The first payments to the users are planned to be made around March 2008 when the monitoring devices will be read for the first time. Data read-outs shall be initially performed by Fundación EcoAndina and will then be handed over to a local villager to minimize the need to travel.

The PDD is currently being developed by enveco GmbH, using the above mentioned baseline and monitoring methodology AMS-I.E.

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Centro Ambiental Argentino (CAMBIAR) or "*TO CHANGE*" works with other mountain organizations as well as the Universities of Tucumán and Catamarca, to promote the quality of life and equality of opportunities in this region of the Argentinian northwest (NOA) CAMBIAR's activities are about the struggle against poverty, answering the needs of the population, making use of solar energy, helping to rescue Andean farming and use technology adapted to improve the provision of food; to promote the use of alternative energy; and environmental education for greater awareness. In particular, work is being done in Tucumán in the valleys with small producers with the objective to preserve Andean culture and traditions of the indigenous peoples to behave as custodians of nature. Work is being done to build on the experience that has benefited small producers in ten localities of the Province of Tucumán.