

# Socio- economic empowerment for marginalized small farmers and landless families through integrated watershed development, Dindigul, India

## Project area and problem definition

The project aims at improving the overall socio-economic living conditions of poor families residing within the Pulimarathukottai watershed area in the Dindigul District in a sustainable manner. Prevailing and increasing land degradation and loss of productivity due to manmade and natural causes have serious implications on the livelihood of the marginalized small farmers and landless families residing in the Dindigul District.

The lands in the villages show severe indications of soil erosion and farmers are forced to leave their lands fallow, after harvesting a single crop during the rainy season. People in these villages depend on rainfed agriculture and cattle rearing activities. Forest and other common property resources are severely exploited.

These changes in the natural environment have effects on all family members: Adult men are forced to migrate to neighbouring states in search of work. Children stop attending school and become child labourers to supplement the income of their families. Women have to continue traditional works at home and earn daily wages. Furthermore, they have to walk long distances to fetch the water for the whole family.

Most families suffer from severe debt due to lack of income sources and the health and hygiene situation also worsened since there are no sanitary facilities and a lack of sufficient nutrition.

The project aims to improve this situation in a sustainable manner through the implementation of an integrated watershed development strategy, including soil and water conservation, sustainable agriculture technologies, income generation, renewable energy technologies and effective common property resource management as well as capacity building of community-based organisations; the target beneficiaries will be economically as well as socially empowered.

## Target group

The target group is 5.000 persons from 1.000 socially and economically marginalized small farmers and landless families of 20 villages of the Pulimarathukottai watershed area of Dindigul District in the state of Tami Nadu in India.

Project partner in India is the organisation "People Education for Action and Community Emancipation / Peace Trust".

## Measures concerning renewable energies: introduction of renewable energy technologies

### Conduct advocacy campaigns for the promotion of renewable energy technologies and organize user groups

Advocacy campaigns for awareness raising and promotion of environmental concerns among all the target communities will be undertaken through the demonstration of environmentally friendly technologies. The target communities will be capacitated to use the resources in a sustainable manner. Necessary user groups will be formed and trained to effectively carry out these activities. The project has the aim to decrease the use of firewood by 30% compared to baseline data and to provide at least 50% of the targeted 10 remote villages with solar lights and smokeless ovens (chulhas) as well as to provide 10% of the targeted marginal farmers with solar water pumps.



## **Provide locally adapted renewable energy products and technical trainings on repair and maintenance**

Adequate provision of energy is the key in fighting poverty in a lot of developing and emerging countries. 2,5 billion people have problems to prepare daily warm meals, to heat water for their daily hygiene or to light their houses. They often lack the access to basic technologies and the knowledge how to improve their situation in an affordable manner. This deficiency obstructs economic development extremely, especially in rural regions.

Clean energy for cooking is essential for a healthy development and helps to secure natural resources. People without any access to energy are not able to take economic values and sustainability into account. If they, however, are in possession of sustainable energy technologies, they are able to live more sustainable and more economically.

### **Solar lamps**

Most households in India have no connection to the energy system and use kerosene lamps for lightning which produce a lot of smoke causing chronic bronchitis and eye inflammations. If the lamps fall down, they cause severe burnings and lead to fires in the wood and bamboo huts. The provision of solar lamps has the following advantages:

- Every solar lamp saves 0,1 t CO<sub>2</sub> per year (amount a kerosene lamp would produce)
- The solar lamps are technical robust and enable a reliable, flicker-free lightning allowing to do schoolwork and other household work even after sundown
- It is a cheap source of energy, since there are 250-300 days of sun a year in India

There will be two types of solar lamps in rural India:

- Small portable solar lamps for every single household consisting of a photovoltaic module, an accumulator and a light-emitting diode (LED)
- Street lamps to light streets and sidewalks in rural areas

There will be 30 solar street lamps installed; the costs per lamp are 460 Euro. The costs for the portable solar lamps for the households are 50 Euros per lamp. The project will provide 560 of such lamps. The families have to contribute about 8 Euros (16%).



***“Our solar lights are brightly lit when all the surroundings are shrouded with darkness. Undoubtedly this is an eco-friendly way of going to the farm land at night time and it helps our children in their studies. The completely smoke free light relieves us from the eye burning kerosene lights”***

***– collective voice of Kalaimal Self Help Group, Narayanapuram***

### **Bio gas plants**

For about 60% of the population in India wood is the primary source of energy. In the long term this leads to the destruction of the local ecosystems. The use of bio gas plants will not only secure the biodiversity, it will also improve the health of the population.

The bio gas plants are being fed with cow dung and other organic waste, then methane is being produced through a fermentation process. Tubes route the methane to simple gas stoves which can be used for cooking and lightning. Thus, the previous sources of energy like wood are being replaced, stopping the exploitation of the forests.

Using bio gas plants as the primary energy source will not only reduce pathogens created in animal and organic waste, it also reduces the emission of smoke and dust inside the houses. These emissions are the main reason for lung and respiratory diseases.

The materials for the construction of the biogas-dome are bricks, concrete or clay from the region. Since the plants are constructed in a technical simple way and easy to use, they only have to be inspected once a year.

- Costs for a family bio gas plant are 100-150 Euros
- 4 persons have energy to cook for 2-4 hours

The project plans to install 180 bio gas plants.

### **Smoke reduced stoves, improved energy efficient cooking kettles**

More than half of the world`s population cooks and heats with open fire or inefficient stoves. These stoves produce a lot of smoke and pollute the air causing respiratory diseases and eye inflammations.

To meet this problem, the project plans to provide two regionally adapted types of smoke reduced chulhas (term for improved, smoke reduced stoves in India).

- Simple, improved stoves made of clay with a smoke outlet through a simple oven pipe
- Stoves made of metal combined with alternative energy sources like bio gas

The project plans to provide 375 families with smoke reduced chulhas; the cost per stove is 10 Euros.

