



# climate change abatement

## Fuel-Efficient Smokeless Stoves, Pakistan

**Grantee:** Escorts Foundation

**Energy Resource:** firewood

**Technology:** efficient stoves

**Application:** cooking

**Sector:** residential

**Households Served:** 11,728, representing a 70% adoption rate in 54 villages

**Efficiency:** use 50% less wood than traditional stove

The simple preparation of food is something most of us take for granted. In rural Pakistan, health, security and environmental degradation are among the many issues that surround the basic activity of cooking a daily meal. The Escorts Foundation was founded by a private company in Lahore and focuses its efforts specifically upon the development of the Changa Manga region. This area is about 80 km from Lahore and includes a set of about 55 villages surrounding one of the largest man-made forest reserves in Pakistan, the Changa Manga Forest Reserve. There are six villages located within the forest, and additional “squatter” settlements in the general area. The reserve is a protected area but is under pressure from local inhabitants who depend upon firewood for cooking. Poverty is rampant and literacy rates are low. There is a high rate of theft of wood from the protected area, with some villagers selling firewood from the forest to generate income. Women use traditional stoves for cooking, coating kitchens, cooking utensils and hands with soot. As a result, women suffer from a variety of illnesses and pains related to smoke inhalation.

### Improving the lives of women and families

The project was designed to spread the use of smokeless stoves among women in these villages in order to reduce their dependence upon firewood, increase energy efficiency and improve their health and general living conditions. The Escorts Foundation made use of a stove construction and dissemination model that has been successfully implemented by the Family Planning Association of Pakistan. To promote the use of these stoves, the Escorts Foundation does not subsidize the stove, believing that users that invest something in the effort will continue using the stove and promote its use to other villagers. The cost of the stoves was kept low by using locally available materials and tools.

### It takes a village to build a new energy source

The project began by training two women from each of six villages, and then encouraging those women to go back home and spread the word. However, this approach was initially unsuccessful. Although the women were paid a small amount – about \$1 – per stove they constructed, adoption rates were low because the two women per village were not able to create a significant demonstration effect. The Escorts Foundation adjusted its approach and increased the number of women per village who received training. At the end of each training session, two particularly motivated women would be chosen from each village to take home construction kits. These women would be responsible for motivating other women to use the stoves and for evaluating and monitoring post-construction use of the stoves. Project staff also made three follow-up visits to each village to help ensure proper maintenance and encourage expanded use. Using this refined approach, adoption rates are now at 70%.

Learning a lesson from the failure of many previous stove projects around the world, this project has taken care to adapt the stove to meet local needs. At several points during implementation they have refined the technology of the stove to make it easier to build and use given local conditions.

### The stove

The stove itself is modeled after the Naada stove, named for the village in Pakistan in which it was first developed and implemented. The stove has two burners and a chimney that conducts smoke out of the home. It is made out of locally-available and inexpensive materials. When used properly, this stove uses 50% less firewood, and does not produce indoor smoke.

# local benefits

## benefits

**Global Greenhouse gas emission reductions:** with 11,728 stoves constructed, an estimated 20 Gt of carbon dioxide emissions would be avoided annually.

**Reduction of illegal wood-cutting:** resulting in a benefit to the diverse flora and fauna in the forest reserve.

**Improvement in women's health:** decrease in smoke inhalation and improved hygiene, since women now have an easier time keeping their hands, cooking utensils and walls clean in the kitchen due to less smoke. This also saves water, which can then be used for other purposes.

**Saved income:** through a 50% reduction in fuel wood use.

**Social:** women have reported more satisfactory relationships with men, since meals are cooked more quickly using two burners, and the food tastes better.

**Employment:** the project employs local women to run the smokeless stove project. These young women originally faced social pressure not to work for the project, but this has changed greatly; now families come to them to help their daughters get jobs.

## partners

Local communities

GEF-SGP

Escorts Foundation has begun training other agencies, some of which have been funded by SGP grants to participate in trainings. These agencies include:

CARITAS

Punjab Rural Support Programme

Shaheen Welfare

Shahbaz Welfare Foundation.

