

# A model for dissemination of improved biomass fuels and cooking devices through rural enterprises

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## Introduction

India produces annually about 600 million tonnes of agro-waste. Although it is more than sufficient to satisfy the cooking energy requirement of the entire country, the low-density biomass is a highly inferior fuel. Rural poor, not having access to better fuels, use it in inefficient cooking devices and in poorly ventilated houses, leading to harmful levels of indoor air pollution, and increasing health risk to themselves.

Technologies exist for converting agro-waste into superior fuels like charcoal, biogas, etc. Improved cookstoves using traditional biofuels in cleaner and more efficient ways are also known. During 1984–2002, the Ministry of Non-Conventional Energy Sources (MNES), Government of India, implemented the National Programme on Improved Chulha (NPIC), to introduce improved cookstoves into rural households. Overall, this activity failed to make a significant impact. However, in the 1990s, Appropriate Rural Technology Institute (ARTI), the Technical Backup support Unit (TBU) of NPIC in Maharashtra and Goa states, introduced commercialisation of improved cookstoves through rural micro-enterprises. As a result of this, by 2000, about 50 rural enterprises, based on improved cookstoves, were reporting an average annual turnover of Rs.150–200 thousand each (Rs.1000 ~ \$22). More importantly, they had created a culture of using improved cookstoves in small areas of the two states. The National Programme ceased to operate in the state from 2002, however, some of the entrepreneurs continued to sell improved stoves in the open market.

From January 2003, ARTI launched a new initiative promoting improved stoves as well as improved biomass fuels through commercialisation, through funding from Shell Found-

## Abstract

Appropriate Rural Technology Institute (ARTI) is conducting a project entitled 'Commercialisation of Improved Biomass Fuels and Cooking Devices in India' under funding from Shell Foundation, UK. The project was launched in January 2003 in Maharashtra state, soon after the National Programme on Improved Cookstoves ceased to operate in the state. The project is being implemented through grassroots level non-government organizations. The aim is to establish at least 100 rural enterprises manufacturing and marketing improved biomass fuels and cooking devices, by the end of 2005. It is also expected that by the end of this period, there would be at least 100 000 rural households in the state routinely using these fuels and devices. At the half way stage, the project appears to be heading towards overachievement of the target.

ation, UK. The specific objectives of the project are to:

- (a) Create a self-sustaining entrepreneurial network of at least 100 rural micro-enterprises for delivery of improved biomass fuels and cooking devices in Maharashtra.
- (b) Establish use of improved biomass fuels and cooking devices as a common practice in at least 100 000 rural households in Maharashtra.

## Methodology

Maharashtra state can be divided into five socioeconomic regions. Two grassroots level non-government organisations are selected as associate NGOs in each region. The project is being implemented through the following phases:

### Market testing

Through its work as Technical Backup support Unit for NPIC, ARTI had the technical know-how for production of a range of improved stoves (fixed as well as portable) to satisfy the diverse cooking needs of the various communities in the state. At the same time, ARTI had developed a complete chain of technologies for converting agricultural waste into char briquettes and using the briquettes as household fuel. In this phase, the associate NGOs

selected volunteer households in their areas of operation. These families were requested to try out various models of improved cooking devices, as well as char briquettes as improved biomass fuel. Periodic feedback was collected from the test users. Simultaneously surveys were conducted to assess availability of biomass fuel, and to document traditional cooking practices. By the end of this phase, a clear picture emerged regarding users' preference in the area of operation of each NGO.

### Entrepreneurship training & finance

The project is currently in this phase. NGOs have selected potential entrepreneurs for training in fabrication technology for the devices that are in demand in their area of operation. ARTI is providing the technical know-how as well as basic entrepreneurship training to these candidates (Figure 1). ARTI and the associate NGOs have constituted a revolving fund to provide seed money to the new entrepreneurs. Local banks are also being encouraged to support these new businesses.

### Promotion & marketing

This phase too has been started almost simultaneously. The NGOs are organising promotion campaigns in their areas of operation to create awareness



Figure 1 Training entrepreneurs in stove manufacture

among the people, and to generate business for the trained entrepreneurs.

#### Monitoring & expansion

In this phase (to start from January 2005), the performance and sustainability of the existing enterprises will be closely monitored, and efforts will be launched for the programme to each and every village in the state.

#### Lessons learned

##### *Feedback from users*

During the market-testing phase, the test users' feedback from all over the state was generally in favour of the improved devices and fuels. Some of the common observations were as follows.

- (a) The most significant point for the users was that the improved

stoves produced no or less smoke compared to traditional stoves, leading to significant increase in cleanliness and comfort in the kitchen.

- (b) Fuel saving, time saving and ease of operation were cited as benefits.
- (c) Some of the stoves were favoured due to their aesthetic appeal and also as a status symbol.
- (d) Cost was a deterrent for some sections of the rural society.

##### *Finance through revolving funds*

Halfway through the project period, more than 50 entrepreneurs are active in different regions of the state. Village level awareness camps and programmes are being organised to create marketing opportunities for the fledgling enterprises. Entrepreneurs are

currently being financed through a revolving fund. ARTI as well as the associate NGOs are encouraging local banks and financing institutes to support the new businesses.

#### *Self-help groups*

The strong movement of women's self help groups (SHGs) in the rural areas of the state is proving highly beneficial to the project. The SHGs are involved in the project in a variety of ways.

- (a) In some locations, they are financing the cost of the stoves for their members. In this case, the entrepreneur gets a bulk order for all the members of an SHG (about 50–100 households). The member households get improved cooking devices of their choice for a nominal down payment. The entrepreneur is paid through the SHG funds, and the members repay the money to the SHG in mutually-agreed-upon instalments.
- (b) In some locations, the SHGs themselves have taken up the business of manufacturing and marketing improved cooking devices. The members operate this business collectively and share the profits in accordance with their individual contributions.
- (c) In some locations, the SHGs have shown willingness to finance the local entrepreneurs. Some of the potter-entrepreneurs are ineligible to obtain bank loans, due to a variety of reasons. But the local SHGs with their experience of 100% loan recovery are willing to take the risk in view of the profitability of the new business.

#### *Clean village contests*

Although, the state or central government is not directly involved in the project, some of the existing government and non-government welfare schemes are proving useful in reaching the products to the poor. One such noteworthy scheme is the 'Clean Village Contest' being implemented by the Department of Rural Development of the state government. In this contest, one of the parameters for judging the villages is number of

households using clean cooking devices. In order to score well on this parameter, the village administrations are looking for improved stove suppliers. The families in the average income group are urged to buy the stoves, whereas the administration is willing to pay for stoves to be installed in poor households.

### *Village-level awareness camps*

Village-level awareness camps are emerging as a successful promotion tool. The NGO representative (who is already known and respected in the village) explains the benefits of the improved cooking devices and fuels. Laminated photographs and/or models as well as promotional video films are displayed. The effectiveness of an awareness camp is enhanced by the presence of the local entrepreneurs to accept orders. The new entrepreneur can be immediately financed by the NGO through the revolving fund to meet the sudden surge in demand. This strategy is proving most successful everywhere.

### *People-centred approach*

Already more than 20,000 cooking devices have been sold through the entrepreneurs, the associate NGOs and ARTI. The current users are fast becoming promoters, and the demand is on the rise from all parts of the state. The project is generating enthusiastic positive response from the rural people. This may appear surprising in the light of the failure of the NPIC. We believe that our success is due to a people-centric approach in the promotion strategy, range of models available to suit varied needs, and ready availability of the products in the neighbourhood market through the local NGOs and entrepreneurs. All these vital ingredients were missing in the subsidy-driven government programme.

### **Future strategy**

A massive publicity and awareness generation campaign is currently being planned to give more impetus to the promotion campaign. ARTI and the associate NGOs will organise a 'Smoke Free Week' throughout the entire state during November 1–6, 2004. Simultaneously, awareness

camps will be conducted in hundreds of villages throughout the week. The NGOs will also organise live cultural programmes based on local traditions, on the theme of improved biomass fuels and devices for healthier kitchens during this week. As a build up to this Week, a series of radio programmes will be aired from 12 radio stations in the state covering 24 of the 33 districts. The NGOs will publish articles and announcements in local media. A special issue devoted to 'environmental pollution and health' of an education-based bimonthly (distribution: 3000+) is being sponsored. It contains articles about IAQ and the project. Copies will be distributed to rural schools and voluntary organisations during the Week. Additional publicity material is being produced in the form of laminated photographs, video films, pamphlets, posters, etc.

Considering the momentum gained by the project and the overwhelming response coming from the rural population, it is estimated that the project would overachieve its target. Once the minimum target of 100 enterprises and 100,000 households is achieved, the emphasis will be on:

- (a) Conducting refresher courses for successful entrepreneurs.
- (b) Conducting training courses for new entrepreneurs wherever required.
- (c) Continuing with promotion and marketing activities.
- (d) Ensuring quality of the products through continuous monitoring and evaluation.

According to the statistics published by Ministry of Non-conventional Energy Sources and the Planning Commission of Government of India in 2000, the total potential for improved biomass cooking devices and fuels in Maharashtra state alone is approaching ten million households. Obviously the number of entrepreneurs will have to increase substantially if the entire potential is to be converted into market demand. The project outcome so far demonstrates that the right strategy for achieving this goal is in place. However, the publicity, promotion and training activities will have to be continued

beyond the project period. More NGOs will have to be involved to reach the concept to each village in each district of the state. In view of these possible long-term activities, a tri-monthly newsletter 'Blue Flame Bulletin' has been launched to enable the project partners to share their thoughts and experiences with each other, and with other interested persons and organisations.

### **Conclusions**

It is noteworthy that the total annual budget of the project is less than the amount annually spent on subsidy in NPIC. The major difference in this case is that the entire amount is being spent on entrepreneurship development. The ten associate NGOs have independent styles of operation, and ARTI has allowed them to follow their own mode of implementation within the framework of the project. We believe that we have put in place a dissemination model that shows great promise of success not only in the state but also in other parts of the country. We also feel that many features of this model are universally applicable, and therefore invite the readers of Boiling Point to try out these strategies in their areas of operation.