Improved cookstove dissemination: Experience from Andhra Pradesh, India

C K Jalajakshi, Associate Fellow, Southern Regional Centre, The Energy and Resources Institute, Bangalore, India.
Email: ckjalaja@teri.res.in

Introduction

The National Programme for Improved Chulhas (NPIC) programme was launched in the year 1984–85 to help conserve fuelwood, check deforestation, alleviate smoke in kitchens, reduce drudgery for women and children, and create employment in the rural areas.

Background to the stove programme in Andhra Pradesh

The main agencies disseminating improved cook stoves in Andhra Pradesh are NEDCAP and KVIC. The number of improved stoves disseminated by APCOST is somewhat less. In the State, more than 20 000 cook stoves have been installed annually since 1993–94 (Table 1); NEDCAP disseminates improved cook stoves in all the 22 districts in Andhra Pradesh whilst KVIC has covered about eight districts. About 2.5 million improved stoves were disseminated in the State by the end of 2000.

Key organisations involved in stove dissemination

NEDCAP: The Non-Conventional Energy Development Corporation of Andhra Pradesh is the nodal agency implementing the NPIC Programme since 1983–84.
KVIC: The Khadi and Village Industries Commission (KVIC) started disseminating cook-stoves in Andhra Pradesh around 1989–90.
IREP: The Integrated Rural Energy Programme, is a centrally sponsored Scheme of the Ministry of Non-Conventional Energy Sources, Government of India.
APCOST: The Andhra Pradesh State Council of Science and Technology, Govt of Andhra Pradesh also disseminates improved cook stoves under the Integrated Rural Energy Programme.

Table 1 Improved cook stoves dissemination in Andhra Pradesh

	NEDCAP	KVIC
Year of initiation of IC dissemination	1984–85	1994–95
Districts covered	22	8
Total improved cook stoves installed (by 2000)	2 385 500	162 478

Source: TERI 2001

Overview of stove development in Andhra Pradesh

The design and development of the improved stoves started with the establishment of the Technical Back Up Support Unit at the Regional Engineering College, Warangal in 1990–91. Before the establishment of this unit, other models that had been developed by other regional centres were being disseminated in the State.

Method of implementation

NEDCAP identifies and trains self-employed workers (SEWs) at the district level and conducts user-training programmes in each district. Some of the SEWs are entrepreneurs who have formed Chulha Development Agencies (CDA). The CDAs are the entrepreneurs who invest in purchasing material for construction of cook stoves, have masons working under them, and take responsibility for identifying the beneficiaries and installing the cook stoves.

There are about 5–10 Chulha Development Agencies in each district. The Khadi and Village Industries Commission depends on the Technical Backup Support Unit at Warangal, which identifies the CDAs and SEWs and sends them to the Technical Backup Support Unit for training. The Khadi and Village Industries

Table 2 Overview of NPIC programme in Andhra Pradesh

Key stakeholders		
Funding agency:	Ministry of Non-conventional Energy Sources and the State government	
Main nodal agencies:	NEDCAP and KVIC	
Technical support	Technical Back Up Support Unit at the Regional Engineering College, Warangal	
Users:	Traditional biomass stove users in rural and semi-urban settlements; low and middle income households	
Suppliers	Self-employed workers (SEWs) some of whom have formed themselves into Chulha Development Agencies (CDAs)	
Stove type	Fixed	Portable
Fuel efficiency	20–40%	25–29%
Stove life – Mud IC	2 years	5 years (metallic)
Cement	5 years	
Primary benefit	Reduced smoke in kitchen and wood saving	
Artisans		
Fixed stoves	Rural stove builders called masons	
Stove parts	Urban based manufacturers of AC pipe	
Potters	Traditional potters in rural areas	
Portable stove	Local manufacturers urban based	
Dissemination		
Stove installations from 1984–2000 (cumulative)	About 2.5 million improved stoves through Chulha Development Agencies (CDAs)	

Theme

Table 3 Improved stoves disseminated in Andhra Pradesh

Type of Improved stove	Efficiency (%)	Life (yrs)	Price* (Rs)	Yr installed	No of pots	Chimney	Pottery liners	Damper	Grate	Mud	Cement & brick	Metal
Aravali	22–24%	2	100	1991–93**	2	√	√		√			
Sahyog	>20%	2	NA	1984–89	2	√	√	√		√		
Sukhad	20–22%	2	105	1989–2000	2	√	√			√		
Gayathri	20–28%	5	230	2000–	2	√	√				√	
Gayathri Jr. – see Figure 1	20–28%	5	172	2000–	2	√	√				√	
Gramalakshmi	25–28%	2	52	1996–98	2		√		√	√		
Grihalakshmi	20–24%	2	60	1993–96	1		√		√	√		
CPRI type I and II***	25–30%	5	160–250	1983	1							√

*no subsidy **about 8000 improved cookstoves were installed *** portable
Source: Various annual reports of TBSU, Warangal

Commission also disseminates through some NGOs.

Target beneficiaries

The target beneficiaries are rural households of whom 30% must be communities with major social and economic problems (Schedule castes and Schedule Tribes). The implementing agencies give the targets to the identified Chulha Development Agencies; the targets are based on the previous year's performance and their ability to execute the programme. Wherever the State subsidy is claimed, NEDCAP identifies the villages coming under these schemes and provides the list to the Chulha Development Agencies for dissemination of improved stoves in these villages.

It is mandatory that the masons constructing stoves should have undergone training under NEDCAP or with the Technical Backup Support Unit, Warangal. The Chulha Development Agencies claim subsidy from the implementing agency after installation of the stoves. The subsidy is released after 100% checking by the implementing agency. The method of implementation is given in Figure 2.

Marketing of stoves

The Chulha Development Agencies take initiative to promote the improved stoves among potential users. They identify the local leaders, local committees such as women's groups, watershed committees, panchayath members etc. and engage their help to create awareness among potential buyers. The brochures and pamphlets prepared by the Technical Backup Support Unit are distributed in the village. The stove builders play a key role as motivators by talking to people. It is part of their job since their income depends on the number of people who install improved stoves.

NEDCAP and the Technical Backup Support Unit conduct user training sessions where the benefits and maintenance requirements of improved stoves are explained. Women are encouraged to participate in such

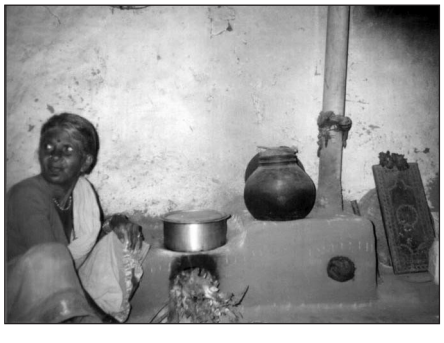

Figure 1 Gayathri Junior Cookstove in Mahabubnagar district of Andhra Pradesh

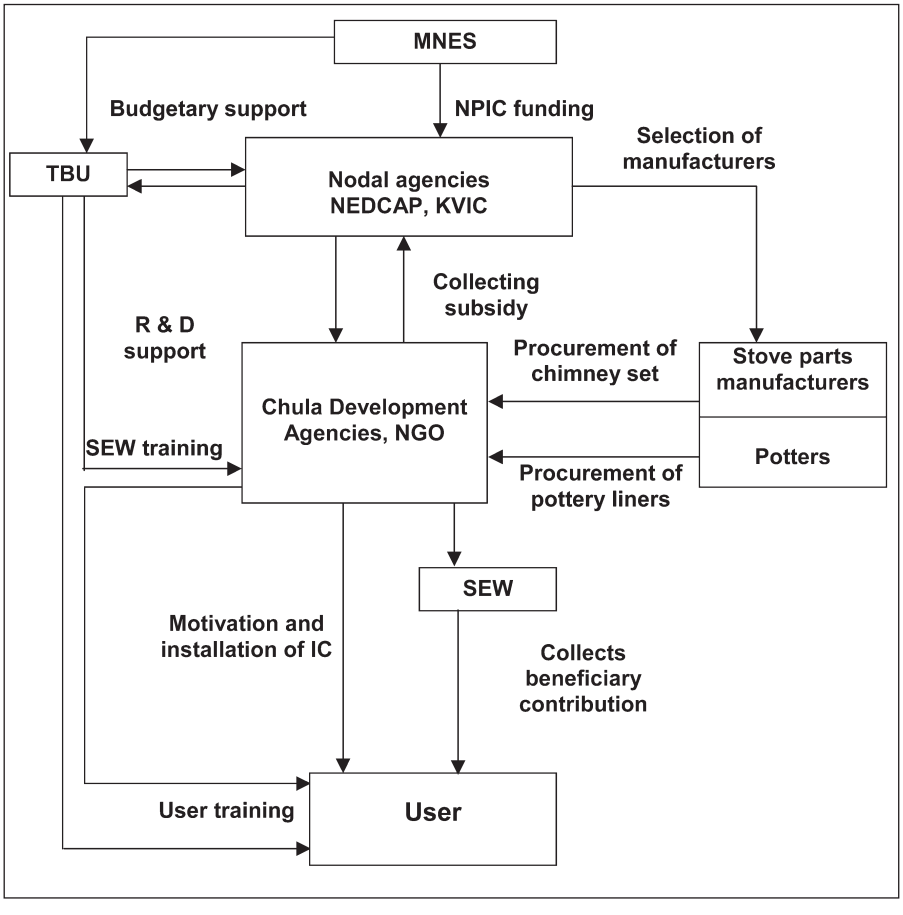

Figure 2 Institutional structure of National Programme for Improved Chulhas in Andhra Pradesh

meetings. Videocassettes explaining the importance of improved stoves are played during such campaigns. However, there are insufficient meetings for the number of districts and blocks in the State.

The government is the sole purchaser of portable improved stoves. NEDCAP purchases directly from the manufacturer. Government bodies, such as the Housing Corporation and the Forest Department purchase from NEDCAP and disseminate the product to beneficiaries under their own schemes.Local manufacturers are involved in the production of portable stoves. The Technical Backup Support Unit tests and certifies prototype portable metallic cook stoves.

Training and interaction

The Technical Backup Support Unit and NEDCAP are involved in conducting training programmes to different stakeholders involved in the NPIC programme. NEDCAP is involved in conducting user training and SEW training. The different types of training given by the Technical Backup Support Unit, such as SEW training, provide ten-day skill development training courses. User training and entrepreneurship training is also given by the Technical Backup Support Unit. The funds for conducting training are given by MNES.

Training to women

Women are encouraged to take part in the training programmes conducted by NEDCAP and the Technical Backup Support Unit. In 1999–2000, 58 per cent of the participants were women, in the SEW training programme conducted by the Technical Backup Support Unit (Table 4). Older women are willing to stay in the villages for 15–20 days during construction of improved stoves. Younger women come from far off villages only if their husbands or brothers accompany them.

Table 4 Training programmes – Technical Backup Support Unit, 1999–2000

	Male	Female
SEW training programme	78	121
Trainers training programme	14	25

In 1997–98, a woman-only entrepreneurship-training programme was conducted to encourage them to take part in the National Programme for Improved Chulhas programme.

Increasing the market for improved stoves

A study conducted by The Energy and Resources Institute (TERI) indicated that transition of poor households from biomass to modern energy sources (LPG and Kerosene) will take many more years to achieve. Improved cook stoves are a better option for poor households than traditional stoves. Traditional stoves are constructed by women using locally-available material and at no cost, so efforts should be made to create awareness among woman on the benefits of improved cook stove usage to encourage adoption.

There are various players in the programme such as self-employed workers, potters, chimney manufactures and entrepreneurs. Efforts can be directed towards tapping the market potential through commercialisation of improved cook stoves, by strengthening the existing stakeholders (suppliers such as potters and pipe manufacturers) and entrepreneurs.

Since subsidy has sent out the wrong signals to consumers in the past, entrepreneurs can be given initial support. Women self-help groups are doing well in the state; the programme can be linked to micro-credit for access to improved stoves for very poor households. The improved stove dissemination in the State is solely a government programme. The large number of stoves disseminated is due to the subsidy towards stove cost. The subsidy given under NPIC is 50% towards stove cost. This programme has been effective in that it has managed to reach the rural households for whom it is intended.

Consumer satisfaction

Women have stated that walls in the kitchen are their cooking vessels are cleaner because of smoke removal. Women living in one-room houses described how reduced smoke in the kitchen enables their children to study even while they are cooking. The women expressed how removal of smoke in the kitchen has reduced the burning of their eyes, and that there is less coughing because they do not have blow the improved stove to supply the primary air for burning. Over 70 per cent of the respondents stated that there is time saving in cooking on an improved cook stove. The convenience of heating water or cooking vegetables on the second pot with residual heat was perceived as one of the benefits of the stove.

Conclusion

The success of the improved stove programme in Andhra Pradesh was due to the institutional linkages developed between various stake holders and the stress given on training and stove development to meet the requirements of the user. The programme has not been implemented on a large scale since 2003, since there is no subsidy towards the stove cost. The efforts so far in training skilled manpower and the network created can be used to commercialise the improved cookstoves. The entrepreneurs trained over the years can be given initial support to take the programme forward and the effort towards stove development and availability of various models in the state can be utilised effectively to meet the demands of the rural women.

References

1. Barnes D F, Openshaw K, Smith K R, Van der plas R. 1994
   What makes people cook with improved stoves?
   A comparative international review of stove programme No 242
   The World Bank, Washington DC USA.44 pp
2. Annual Report 1991–92 to 1999–2000
TBSU, Regional Engineering College, Warangal
3. TERI.2001. Successful practices for improved cookstoves in India: A case study of Andhra Pradesh.

C K Jalajakshi has a Masters degree in Agricultural Economics and working as an Associate Fellow in The Energy and Resources Instititute, India. She is involved in research into natural resource management with a focus on rural and renewable energy.