

# Commercialised stove production in Sri Lanka - 300000 stoves a year - A success story.

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ANAGI STOVE



Since the inception of improved cook stove (ICS) program in Sri Lanka in early 1970s it has gone through several stages during its long journey.

The period can be broadly divided into three phases of development.

(1) Design and testing phase 1970-1985 (2) Promotion & dissemination 1985-1991 (3) Commercialisation phase 1991-2005. During

this period of development, several stakeholders from government and non-government organisations participated, and the objectives changed from a narrow focus on firewood conservation to a more integrated-development approach. The present design is an one piece two-pot clay stove, which can be used alone or with a mud-insulated covering as desired by the user according to its needs.



About 750000 stoves have been disseminated during the subsidised phase from 1985 - 1991 with the support of the government and several donor agencies mainly the DGIS (Royal Netherlands Government). The stove promoted during this phase, which was a two pot mud insulated with a pottery liner required a skilled stove-installer. It was developed by the "Sarvodaya", a leading NGO.

It turned out, however, that it was difficult to promote a heavy mass stove as a marketable product. That is why this model was later modified into a two-pot single piece clay stove, which is the present stove called "Anagi". It was the model used in the commercialisation phase initiated in 1991 by the Integrated Development Association (IDEA) with technical assistance from the ITDG and funding from the ODA. The stove is designed to cater for the cooking needs of an average family of 6 people.

It can be estimated that over two million "Anagi" stoves have been commercially produced and marketed since 1991. Now, about 300000 stoves are annually produced by 120 rural potters trained by IDEA scattered in 14 districts of the country. Today "Anagi" ICS is one of the most widespread pottery items in village grocery stores. If the Anagi stove is used without insulation, its life-time may be of about 1 year and if insulated, 3 years or more. Several district surveys revealed that over 20% of households use Anagi stoves. Sri Lanka's ICS promotion is now fully commercialised. The basic factors of demand, supply and profitmaking concepts determine the continuation of the commercialisation of ICS.

Training in stove production is provided by IDEA and a set of templates and moulds are given to the trained potters to maintain the correct dimensions and quality. A training manual has been prepared to cover all aspects of the stove construction from clay mixing, to throwing, assembling, drying and firing of stoves. The technical energy efficiency of the "Anagi" ICS is 21% and a large number of field tests performed recorded firewood savings ranging from 22% to 43% in addition to an average time saving of 30%. The wholesale price of the stove at the production centre ranges from RS 65 to Rs 95 while the retail price varies from about Rs 90 to Rs 200, (\* 1 Euro = Rs 120) .

### **Marketing of Stoves**

General distributors (Wholesale buyers) visit the production centres to buy the stoves in bulk. Producers have their regular buyers. A lorry can accommodate about 400 stoves at a time. Stoves purchased are distributed to retail shops spread over a distance of about 200 km. Small producers living in isolated areas sell their products directly in the village at prices much higher than the normal selling price of Rs 120.



### **Simple cost- benefit analysis**

#### **Assumptions:**

An average family of 6 persons use 200 kg/month

Price of firewood: Rs 3/kg Average cooking time 6 hrs/day

Average firewood savings and time savings 30%

Average stove price: Rs 120

(Note: Majority of rural users collect their own firewood at no cost)

**Financial benefit:** Rs 60/month. Pay back period 2 months

Time savings: 2 hrs/day

**Environmental Benefits:** In a study done by the Centre of Environmental strategy, University of Surrey, it is estimated that considering 4 scenarios, the Anagi Stove has the potential to reduce CO<sub>2</sub> emissions within a range of of 111 kg/ CO<sub>2</sub>/capita/year to 266 CO<sub>2</sub>/capita/year. (Initial Evaluation of CDM type projects in Developing Countries. Dr K.G. Begg et al. Centre for Environmental Strategy, University of Surrey)

**Employment & Income Generation/ 1000 stoves/month**

Assumption: Wholesale price Rs 65/stove and Retail Price Rs 120/stove

Production Turnover: Rs 65000. Employment: 1 potter and 3 unskilled persons. Sales turnover: Rs 55000

**Profile of a stove production village**

Kumbukgete is the main stove production village situated in the North Central province in Sri Lanka. In the year 1985 one family in this village was trained to produce the "Sarvodaya" stove under the National Fuelwood Conservation Programme implemented by the Ceylon Electricity Board. The monthly production of 300 stoves was sold at Rs 25/stove to the programme. This was the beginning of stove production in this village. In 1991 when the commercial programme was initiated by the Integrated Development Association (IDEA) with the support from ITDG to commercialise the "Anagi" Stove (improvement of Sarvodaya stove) five families in the village were trained to produce 500 stoves a month. At the end of 1996 when the programme was over the production had increased to 1500 with 10 families involved in production.

Thanks to the continuation of the programme by IDEA after 1996 and the partial support from the ARECOP (Asian Regional Cookstove Programme) as well as the support of many other donors, the monthly production in the village gradually increased to 15000 stoves,



which is almost 60% of the total stove production in Sri Lanka.

Out of the 39 potter families, 29 families are engaged in stove production deriving unskilled labour from the neighbouring villages. Out of the 171 engaged in production activities 80 are women, 122 are from the families within the village and the rest, mainly for unskilled labour are from the neighbouring villages. Twelve producers have obtained bank loans ranging from Rs 75000 to Rs 200000 to be invested in stove production.

The following data provides evidence of the substantial improvement in the socio-economic status thanks to the stove-production activities within the village.

### Production and Income

No: of Families	No: stoves/month	Income Rs
13	100 - 300	6500 - 19500
11	301 - 600	19500 - 39000
05	701 - 1000	45500 - 65000

### Material Acquisitions before and after commencing stove production

Item	Before	After
Colour TV	1	19
Cassette Radio	1	19
Sewing Machines		12
Refrigerators		8
Electric fans		14
Rice Cookers		4
Gas Cookers		2
Blenders		3
Heaters		1
Bicycles	3	3
Motor Cycles		10
Hand Tractors		9
Lorries		9
Vans		1
Cars		1

### Improvement in Houses

Item	Before	After
Roof		
(a) Tiles	3	22
(b) GI Sheets		4
(c) Thatched	12	3
Walls		
(a) Brick	3	26
(b) Mud	9	3
(c) Cadjan	3	

Floor		
(a) Cement	3	28
(b) Cow dung	12	1
Electricity	2	29
Permanent Toilets	4	29