

# **Historical Timeline from Subsidy to Commercialisation of Improved Cookstoves: The Path Leading to Sustainable Stove Development and Commercialisation Activities in Sri Lanka**

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## **1. Introduction**

Sri Lanka is comparatively a small country, 65000 sq. km in extent carrying a population of 18 million. The per capita income is 800 US\$. Biomass provides 53% of the total energy consumption, which is consumed by over 80% of the population. Domestic consumption accounts for 72% and small-scale industries consume the balance of 28% of the biomass energy. According to administrative definition, three fourth of the population live in the rural, estate and resettlement sectors. More than 95% of the people consume fuel wood for cooking purpose.

Since the inception of Improved Cook stove program in Sri Lanka, it is estimated that about one million stoves have been bought or received in all part of the island. Currently roughly about 300,000 stoves are annually produced and marketed through a commercial network which extends to 14 districts covering nearly 60% of the country's population.

ICS has gone through several stages during its long journey. Today ICS is one of the common items in almost all the sales outlets that sell pottery items and in some village grocery stores. It can be safely estimated that the total number of households in the country is four million and of this the rural sector may have about three million houses. If the Anagi stove is used without insulation the lifetime may be about 1 year and if insulated 3 years or more. In several district surveys carried out it is revealed that about 18% use Anagi stoves.

The success achieved in stove development is due to the participation and efforts of a number of stakeholders during last three decades. \*The path that ICS came through can be simply highlighted as a route of subsidy to commercialisation stage. \*Sri Lanka's ICS promotion is now fully commercialised and the basic factors of demand, supply and profit making concepts determine the continuation of the commercialisation of ICS.

Commercialisation of ICS was realised as a result of consistent and timely chain of interventions and activities of several stakeholders since 1952. Amidst the ethnic civil disturbances, which disturbed the political and economic development for over two decades, the stove development activities continued uninterrupted beginning in early seventies to date.

By now three international seminars on stove development activities have been held in Sri Lanka to share the experiences with the international stove community.

## **2. Objectives of the Paper**

The major objective of this paper is to present the lessons learnt during the path from subsidy to commercialisation of the ICS in Sri Lanka. To support this major objective, the paper deals with the following sub-objectives. They are:

1. To study the history of commercialisation process of ICS of Sri Lanka;
2. To study role of various stake holders in the process of commercialisation; and
3. To discuss concerned issues of commercialisation process.

## **3. The Present Status and Characteristics of ICS Progress**

Annually over 300000 stoves are produced and marketed through this network extending to 14 districts which covers nearly 60% of the country. Commercial Network of stove production and marketing is in operation

without any outside support. Advertising or any other media support is not available other than the limited awareness creation by concerned government and non-government organisations.

Among the 280 (Men: 194, Women: 86) potters trained by IDEA 147 are actively producing stoves and about 30 wholesale dealers distribute the stoves. The following chart gives the production capability of potters.

Table 1: ICS Production

Stoves production/month by Producers	Number of potters produced monthly
0 - 100	79
100 - 600	58
600 - 1000	08
1000 - 2000	02

The wholesale price range from Rs45.00 to Rs 90.00 and the retail price from Rs 55 to Rs 175.00. Annex 1 gives the production figures district wise. It is observed that despite the efforts to train potters throughout the country over 70% of the production is in the Kurunegala District. (1 US\$= Rs 100. Approx.) Annex 2 gives stove distribution network.

Annex 3 gives a picture of various strategies of how stoves move from the producer to the consumer.

IDEA is the major organisation which co-ordinates, monitors and responds to the needs of the stove development community which comprises of several government and non government organisations operating at provincial, district and community levels. At present there is no significant foreign funding for stove activities except the support provided by ARECOP for networking activities for which IDEA act as the focal point. A network of district level NGOs has been formed with the support and guidance of ARECOP.

It is observed that the commercial network penetrates only the urban and semi urban markets. Therefore for the benefit of consumers who do not have access to commercial network, the poor who cannot afford the price

and others whose energy needs are not met by the Anagi Stove, training in the construction of mud stoves are provided by IDEA to local NGOs and CBOs. ARECOP's intervention has enhanced the scope of stove development in Sri Lanka to extend the benefits of Anagi stove to a large rural population and more importantly to meet the needs of users whose needs are not by the Anagi.

Several GOs and NGOs have programmes to provide stoves at subsidised prices for the poor households on a limited scale.

## **4. History of ICS Activities**

The interest in ICS goes back to four decades, which emerged with the global oil crisis and the concerns of deforestation. In the early nineteen seventies a large extent of the land in Sri Lanka was opened up for agricultural development and settlement schemes thus clearing substantial areas of forests which was thought to create shortages in firewood supplies in Sri Lanka. As a result, interest in using firewood efficiently was highlighted. The global concerns of deforestation strengthened these interests and focus was made on designing energy efficient stoves.

The stove development process can be broadly divided into four stages. Stove design period, pilot and small scale dissemination, large scale dissemination and commercialisation.

### **4.1 Stove Design, Pilot and Small Scale Dissemination**

The distribution of 'Herl' Chula mud and chimney stoves commenced as far back as 1952 by Social Workers. By 1972 Industrial Development Board (IDB) came forward and designed the two pot brick and cement stoves. In the same decade (1978) Ceylon Industrial and Scientific Research Institute (CISIR) tested two pot pottery with a chimney. During end of 80s and beginning of 80s (1978-83) Sarvodaya with the support of Intermediate Technology Development Group (ITDG) designed several types of two pot stoves while in 1983 CISIR designed a single pot pottery stove. Activities during this period were not limited to design only but also initiated several pilot programs and small quantities of ICSs were also disseminated.

Sarvodaya being a national level community development NGO was able to distribute few stoves in their target communities.

## **4.2 Large Scale Dissemination**

Entering of Ceylon Electricity Board (CEB) into stove activities with a view to reduce firewood consumption and thereby minimise deforestation, speeded up and provided impetus to the stove dissemination activities in Sri Lanka. Mass scale distribution commenced afterwards. CEB selected the stove designed by Sarvodaya after several field evaluations since it was found to be more socially acceptable than the stoves developed by CISIR and IDB. The CEB national programme was initially implemented in 4 districts and later extended to cover 12 districts over a period of five years installing nearly 400000 Sarvodaya stoves which needed the services of a trained stove installer trained under the CEB programme. The stove was provided at a subsidised price. The services of government officers in the district administration service were heavily utilised in the promotion campaign providing them with incentives for their services. After three years of commencing the programme in rural areas, CEB with technical assistance from ITDG and funding from ODA/Ministry of Power & Energy commenced the urban stove programme. Since the Sarvodaya Design which was a mud insulated stove requiring the services of a trained installer was not suitable for the urban market, a 2-pot single piece clay stove which could be bought directly from a vendor and used without installation was introduced. This stove was named "ANAGI" meaning "excellent". Unlike in the rural programme where Sarvodaya stoves produced by rural potters (informal sector) and bought by the project and delivered to users, the Anagi stove was produced in Tile Factories (formal sector) and sold commercially using existing private sector networks of middleman and retail shops dealing with pottery products, tiles and bricks. Nearly 70000 stove were produced and sold within the project period of two years. The project provided skills training to tile factories and limited promotional support such as advertising using the mass media.

Despite the fact that a large number of stoves were disseminated and considerable public awareness was created under the rural programme, with the termination of the programme by the CEB, production of Sarvodaya ceased and users were unable to buy new stoves for replacement of broken stoves.

### **4.3 Stove Commercialisation**

Though CEB made a significant impact on the dissemination of 'Anagi' the project did not have a future vision so that after the project withdrawal ICS dissemination did not sustain. At this crucial period a strategy was developed, specially to promote the stove project in the rural sector. The Project Manager of the CEB stove programme set up the Integrated Development Association (IDEA) to continue stove dissemination efforts with the guidance of a few development experts.

Intermediate Technology Development Group (ITDG) of Sri Lanka, which assisted CEB in the stove dissemination effort, recognised IDEA as the Partner Organisation (PO). ITDG provided technical inputs and secured funding for IDEA to continue with dissemination of stoves in rural areas thus filling the vacuum created by the withdrawal of CEB. IDEA being a NGO with a future vision was able to shell the rigidity enforced by the CEB thinking which enable to accommodate a wide spectrum of development issues, which could not be addressed within the CEB objectives. Creation of IDEA was an important initiative for sustainability of stove activities in Sri Lanka since the main objective was to implement and support projects related to stove. Therefore IDEA had the freedom, mandate and commitment to focus on stoves only without diluting their efforts on other projects.

The first step in stove commercialisation was taken with the Urban Stoves Programme by the CEB. The experience gained by this project was used in the IDEA rural programme with a broad spectrum of development objectives addressing and accommodating commercialisation issues and micro concerns of users and producers.

#### 4.4 Different Designs of Stove Models and Shifting of Objectives of ICS Activities

Chart 1: Stove Models Designed by Various Institutions

Stove Models Designed	By Whom
1952 Herl Chula- mud/chimney	Social Workers
1972 Two pot brick and cement	Industrial Development Board (IDB)
1978 Two pot pottery with chi	Ceylon Industrial & Scientific Research Institute (CISIR)
1978- 1983 Lorena, Dian Desa/chimney/chimneyless 2 pot mud stoves, Sarvodaya 2piece pottery liner	Sarvodaya/ITDG
1983 Single pot/clay/ grate stove	CISIR
1986 Anagi two pot clay stove	CEB/ITDG
1987 Large Institutional Stoves/brick /iron grate/chimney	CEB/Hoffmann Consultants
2001 Mud Stoves with grate for Domestic/Cottage industries	ARECOP/IDEA

While introducing various models of stoves by various institutions from the inception of the ICS program, the objectives of the ICS program too changed from time to time. Looking at the CISIR and IDB initiatives, the main objective in 1972 was to develop an energy efficient ICS. As they were technical institutions the objective was to develop technically sound stoves. Mean while in the end of 70s Sarvodaya aimed at developing a socially accepted ICS as by nature Sarvodaya was a community development NGO. In the CEB National Fuelwood Conservation Programme ICS were introduced to minimise deforestation and to develop built-in-mechanism in the village infrastructure for dissemination of stoves. ITDG/CEB

later (1987) changed objectives of Urban Stove Marketing Project to address deforestation, domestic energy expenditure, and generation of income earning opportunities, clean kitchen and availability of hot meals and hot water. After 1991, ITDG/IDEA ICS program included new objectives, namely, income opportunities for potter families, improving household condition, cooking convenience, time saving of women in cooking, health, household energy and to influence policy-makers.

IDEA/Plantation Housing and Welfare Trust and IDEA project conducted in the plantation sector of Sri Lanka included few more objectives to the ICS program. The program aimed at reduction of woody biomass, improving conditions under which women cook and using stoves as an entry mechanism for other types of development programmes. See chart 2 below.

**Chart 2: Change of objectives of ICS program**

Year	Objective
1972	To develop stoves with high efficiency - <b>CISIR, IDB</b>
1979	To develop stoves with high efficiency - <b>CISIR, IDB</b>
1984	To minimise deforestation, and pressure on existing resources- To develop built in mechanism in the village infrastructure for dissemination of stoves - <b>National Fuelwood Conservation Programme - CEB</b>
1987	To reduce domestic firewood consumption, reduce rate of Deforestation and domestic energy expenditure, generation of employment opportunities, cleaner kitchens and availability of hot meals and hot water - <b>Urban Stoves Marketing Project. CEB/ITDG</b>
1991	To create additional income opportunities for potter families including women potters. To improve household conditions, greater cooking convenience, timesavings of women. To influence policy makers, others interested in health, household energy and other development issues with the lessons learned. To extend the benefits of ICS to rural areas. To establish fully commercial and sustainable production <b>Rural Stoves Marketing Programme (IDEA/ITDG).</b>
1991	To create additional income opportunities for potter families including women potters. To improve household conditions, greater cooking convenience, timesavings of women. To influence policy

	makers, others interested in health, household energy and other development issues with the lessons learned. To extend the benefits of ICS to rural areas. To establish fully commercial and sustainable production <b>Rural Stoves Marketing Programme (IDEA/ITDG).</b>
1994	Reducing woody biomass that is removed from the vicinity of the tea estates, Improving conditions under which women cook. Using stoves as an entry mechanism for other types of development programmes. Plantation Stoves Project
1996-2002	Networking of NGOs interested in stove related activities, decentralising stove activities and transferring technology to NGOs and CBOs- IDEA/ARECOP Networking Programme

#### 4.5 Role Played by Donor

It should be noted that without local and foreign donors the commercialisation of ICS might have been a dream. From the very beginning both the state agencies and foreign donors gave sufficient attention to ICS program. The commitment of donor community to a great extent resulted in the materialisation of ICS commercialisation. ODA, Ministry of Power & Energy (MPE), DGIS (Dutch). NORAD, SIDA. Ministry of Environment, Ministry of Plantation, Ministry, ITDG and ARECOP were the major donors. In addition to the above organisations the **RWEDP/FAO**, Bangkok provided valuable technical assistance and international exposure to ICS activities in Sri Lanka. See Diagram 3.

**Chart 3: Important Actors and Donor Agencies in the ICS Commercialisation Effort**

Period	Implementing Organisations	Donor Agencies
1972 1979-1983 1983 1984- 1990	CISIR, IDB Sarvodaya, ITDG CEB,NERD CEB	Ministry of Industries ODA Ministry of Housing Ministry of Power & Energy (MPE), DGIS (Dutch). NORAD, SIDA. Ministry of Environment, Ministry of Plantation, Ministry of Public

1987	CEB/ITDG	Administration( AGAs)
1991 -1996	IDEA/ITDG	MPE, ODA
1996 - 2002	IDEA	ODA/ITDG/NORAD
		ARECOP

## 5. Path to commercialisation - Lessons Learnt

After careful examination of the process of ICS activities, the major factors that contributed towards the ICS commercialisation process are given below.

### 1. Uninterrupted linkages of activities

Since the inception of the dissemination of ICS till now activities related to promotion, dissemination, distribution, potter training, networking, market development, etc. have been carried out uninterruptedly. One main reason for this is the committed service by IDEA. Though some GOs and NGOs and even donors dropped the interest on ICS, the gap was always filled by IDEA throughout. Thus IDEA has been the link to sustain the ICS interest in the country. IDEA was able to carry out follow up activities and training on its own through out despite the lack of financial support from donor agencies, which helped to motivate producers and CBOs.

### 2. Exposure to international experience

As IDEA has been sustaining the interest of ICS throughout, it was able to share their experience and gather experience from other countries and keep abreast of current development to update knowledge and skills. This has motivated the IDEA and the network organisation to sustain the interest in ICS. Ability of IDEA to maintain close relationship with international organisations like ITDG (UK), RWEDP/FAO and ARECOP provided access to international experience and development orientations which helped IDEA to improve the quality of its services provided.

### **3. Shift of Objectives of ICS programs**

Development objectives of ICS have changed from macro level national concerns to micro level user, producer, social and gender concerns, which reflects a holistic and flexible approach. Objectives have always been tuned up to suit the international and national major development interests. This resulted in the integration of ICS programs to all types of social development programs. Without the tuning up of objectives of ICS program, many organisations and donors would have lost their interest in ICS activities.

### **4. Implementation strategies changed from subsidies to commercial orientation**

Initially ICS were introduced with a subsidy by almost all the programs. People may not change their habitual behaviour easily from three stone stoves to ICS, if ICS were not introduced as a subsidy. As the 3 stone stove is easy to construct and no cost is involved, people may not like to buy one (ICS) from the market and carry the heavy item home and to get it installed through a trained installer. As they were given free of charge, people tried them out. This resulted in the promotion through demonstration effect for people to realise the usefulness of the ICS.

Under CEB program, distribution of ICS was controlled centrally. This was changed into a decentralised activity by IDEA. Further, the central management system changed to participatory management to accommodate both commercial and extension routes.

### **5. Change of responsibility from GOs to NGOs**

Major implementation responsibility has shifted from government to non-government organisations resulted in the maintaining interest in the ICS

activities. When there is no financial allocation or interest of the government is changed, continuity of development programs of this nature is interrupted. Moreover flexibility to respond to conceptual and other changes required for project sustenance is limited due to rigid regulations in GOs. NGOs have a more conducive environment and vision to address and respond to changing user needs.

## **6. Support received from GOs**

Availability of a large body of experienced potters and public awareness as a result of the government subsidised national programme from 1984-1990 prior to the launching of the commercially oriented programmes were instrumental in the success of the commercialisation effort of ICS.

Initially the interest paid by GOs was also affecting the ICS commercialisation process positively.

## **7 IDEAs involvement**

Existence of IDEA which has the vision, leadership, recognition, expertise, potential, contacts and commitment for long term involvement to guide and co-ordinate all aspects of stove development activities at a national level.

## **8 Stove centredness**

All the projects that IDEA has been implementing though out (from inception to date) are ICS centred. This ICS centeredness made to widen the scope of the ICS activities and be able to incorporate ICS program in development projects implemented by GOs, NGOs and local government authorities.

## **9 Assisting large scale producers**

Providing assistance to large cluster of potters living in close proximity was found to be more effective than training individual potters living in isolation. In the former case larger production is achieved, cost of production is low and large number of dealers visit the village to buy stoves. Kumbukgate and Nungamuwa are two such villages producing nearly 50% of the total production. Sustained efforts and assistance to these producers until they became self sufficient helped largely in the commercialisation of ICS. This is one of the main factors that positively

contributed to the commercialisation process initially. However this factor now to some degree appear to play a negative role as they can demoralise small scale competitors who have higher cost of production. Many of the individual potters producing small numbers of stoves do meet the local needs but are unable to feed and compete in the commercial network.

As one of the major objectives of the ICS program was to provide income generation opportunities for the potters in the rural sector, high production rate among a few large scale producers have negated the project efforts to improve the income of small scale rural producers. This has resulted in stoppage of production by a few small producers, which is one reason for the non-availability of Anagi stoves in isolated rural areas.