

The Upesi rural stoves project

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The Upesi project, supported by Intermediate Technology Development Group (ITDG), was initiated in 1995 to improve the living and working conditions of women in rural households by enabling a significant and increasing number of women and their families to benefit from fuel-saving wood burning stoves.

The project's aim was to test and demonstrate the effectiveness of new approaches and technologies for commercialisation of Upesi stoves in five districts in Western Kenya. By working with women's group and involving them in the design and field-testing of the stoves, the project was able to take advantage of women potters' knowledge and experience. Besides training the women in stove production, distribution and installation, the project focused on improving their marketing skills. This has been a critical element in enhancing the ability of women to earn income from stove-related activities.

Women and children suffer the most from over reliance on limited biomass energy resources in rural areas (Figure 1). They are the main procurers and consumers of wood for domestic use and generally have very limited access to modern, clean and efficient energy technologies. Consequently they spend considerable amounts of time and energy involved in the daily tasks, and are exposed to high levels of air pollution and associated illnesses related to smoke from wood fuel fires.

Improved cook-stoves development

Following the 1980 United Nations Conference on New and Renewable Sources of Energy, many organisations began to work individually and collaboratively on improved stove development and dissemination. The organisations involved in the early 1980s include the newly created Kenya Ministry of Energy, the Appropriate Technology Centre, the Kenya



Figure 1 A woman fetching firewood in Kakamega forest (photo: Practical Action)

Energy and Environment Organisation (KENGO), United Nations Children's Fund, Maendeleo Ya Wanawake, CARE-Kenya, the Intermediate Technology Development Group and GTZ, the German Technical Cooperation organization. Among the more popular stoves introduced were the charcoal-burning 'Kenya Ceramic Jiko' (KCJ), and the wood-burning 'kuni mbili' and 'maendeleo jiko' – known also as the 'Upesi' stove.

The KCJ (Figure 2) stove was developed through a design process spearheaded by the Ministry of Energy. The jiko stove easily found acceptance among urban stove pro-

ducers who were initially offered free training and marketing support by KENGO, working with the ministries of Energy, Agriculture, and Environment and Natural resources. Although most producers and dealers of the jiko stove have been men, many women in small urban areas have benefited immensely from the technology, significantly improved their standards of living through gains in the time and income.

Rural stoves programmes

Over the years, improved stoves have been more difficult to introduce in rural areas because stoves cost money and



Figure 2 The Kenya Ceramic Stove (photo: Practical Action)



Figure 3 The Upesi Liner (photo: Practical Action)

the traditional three-stone cooking system is free. Rural people are generally very poor, and women and children mostly cook using fuel wood which is collected for free, so there is less incentive than in urban areas to spend money on a stove for reasons of fuel conservation. Promotions and sales of the stove have been difficult because women's groups with little or no experience in competitive marketing have conducted production and distribution of rural stoves.

In 1986 ITDG joined with KENGO to initiate a new project focusing on the stove needs of households in rural areas. The study found that the most acceptable and efficient stove was the Maendeleo or Upesi stove (Figure 3) designed and tested by GTZ and the Appropriate Technology Centre as part of the Women and Energy project of Maendeleo Ya Wanawake organisation. Groups of women potters around Kisumu were trained to produce the already successful Kenya ceramics jiko as well as the Upesi stoves. The same group were also involved in tree planting and agricultural activities for income generation.

In many rural areas, the Ministry of Agriculture extension officers in home economics and agriculture were already engaged in 'kitchen improvement' and nutrition projects. They became key promoters of improved stoves because of the health and hygiene benefits of the stoves. Through funds from GTZ, the officers bought and distributed stoves at a nominal controlled price. The price

was based on an estimate of what rural women would be willing to pay. Thus was established a secure marketing channel for women's groups, a steady but small income from stove production, irrespective of the quality of the stoves. After about eight years, however, support from GTZ ended and the government's home economics officers were unable to continue their marketing services on a large scale.

Case study: Income generation through stoves liner production

Mrs L. A. is the person in charge of liner production in the group. She grew up without formal education, learning basic literacy and numeracy through an adult education programme. At the start of her involvement with stoves, she was a peasant farmer with a jobless husband, barely able to make ends meet, providing her own farm labour. Today Mrs L is a qualified production trainer and has visited Tanzania and Malawi on a training mission. She is able to pay over KShs 7,000/= per year for farm labour and inputs, and school fees amounting to KShs 2,500/=. She also employs labourers to work clay for her liners. At the start of the stove business her neighbours and in-laws despised her choice of occupation saying it was playing with clay like children. Now Lucia is a respected member of the community and several previous detractors have joined the group.

The Upesi project

In 1995, ITDG's Rural Stoves West Kenya project ended and a new phase focusing on commercialisation was initiated; called the Upesi project. The new project launched an intensive campaign to improve the sustainability of the stove-related income generating activities. The project worked primarily with eight women's groups, with differing level of marketing skills and knowledge. Some were in villages where fuel wood could be collected free, while others were in wood-buying areas. The women, who previously had been involved in various agricultural and pottery activities for income generation, took the initiative to approach development agencies working in energy and they sought technical support in developing alternative income-generating activities.

The Upesi stove was selected for production through field trial that showed it could provide fuel wood savings of up to 43 per cent compared to a three-stone fire, and appeared to have a life span of four years. Some stoves have reportedly been used for up to ten years. During the field tests, the affordability of the stove was determined on the basis that if an ordinary lady can sell bananas or chicken to afford a stove, then the price is acceptable. Thus KShs 70/- was considered an acceptable price for an installed stove. Later the Upesi project raised price to KShs 120/= to reflect actual production costs.

Keyo women's group

This group, which began with five members, got involved with stoves in 1986, after seeking technical assistance from a CARE Kenya project operating in the area. Their stoves were initially marketed through home economics officers with GTZ funding. Today, the group has approximately 28 members producing, selling and installing stoves. They have links with artisans in Kisumu town who buy their stoves in bulk. Some members have benefited from bicycle loans, which have eased their marketing efforts.

Women's participation was enhanced by having been in contact with women in the field; the home economics officers. These government extension officers may have distorted the earlier stove market through subsidised distribution, but they were certainly key agents in the areas.

One of the primary barriers to participation by women was that they did not have enough time and could not be away from home for long periods. Because of women's many domestic and community responsibilities, it was important to ensure that any new activity was compatible with their ongoing duties. Many women became involved in the stove production activities, but needed training in marketing skills, yet any new training and

marketing activities needed to fit with existing responsibilities.

Commercialisation strategies

The marketing approach for the Upesi project was developed over a period of five years. The producers' groups represented isolated focal points in vast rural areas. Most of the potential users were far from the producers, the road network was poor and motorised transport was generally unavailable. A strategy was needed to ease the transition from a controlled market to a relatively free market where the prices reflected the full costs of production marketing and provided a reasonable profit margin. The new strategy was piloted with the Keyo Women's Group after which it was adapted to the very different conditions of each producer group. The strategy was based on insights gained from a visit to an ITDG stove project in Sri Lanka, as well as a marketing study in the project area.

Identification of key stakeholders for support was an important part of the strategy. The relevant government departments, major NGOs, and existing stove producers in the area were informed of the project's intentions and its interest in developing marketing plans.

Training was seen to be critical as there were a number of different

actors; intermediaries (who act as a link between manufacturers and retailers) retailers, promoters and installers. These intermediaries typically became involved in the project after seeing a stove demonstration or through others already producing or selling stoves. Producers were trained in group dynamics, stove production, costing and pricing, record keeping, building marketing links and responding to consumer demands. For retailers there was in depth training in customer relations and sales promotion as well as costing and pricing.

Promoters and installers were trained in stove promotion messages, carrying out successful demonstrations, and establishing linkages with communities. The idea was to have as many people as possible spreading information and carrying out demonstrations of the stoves. Thus a team of promoters was identified to visit homes, churches, market places, grain milling centres, schools and other public places. Other organisations such as the Anglican church of Kenya in Eldoret Diocese, the Maranatha Mission of Kenya and the Ministry of Energy were involved in creating awareness and providing potential linkages. Figure 4 illustrates typical market linkages and distribution networks for Ichingo Women's group, Mumias, West Kenya.

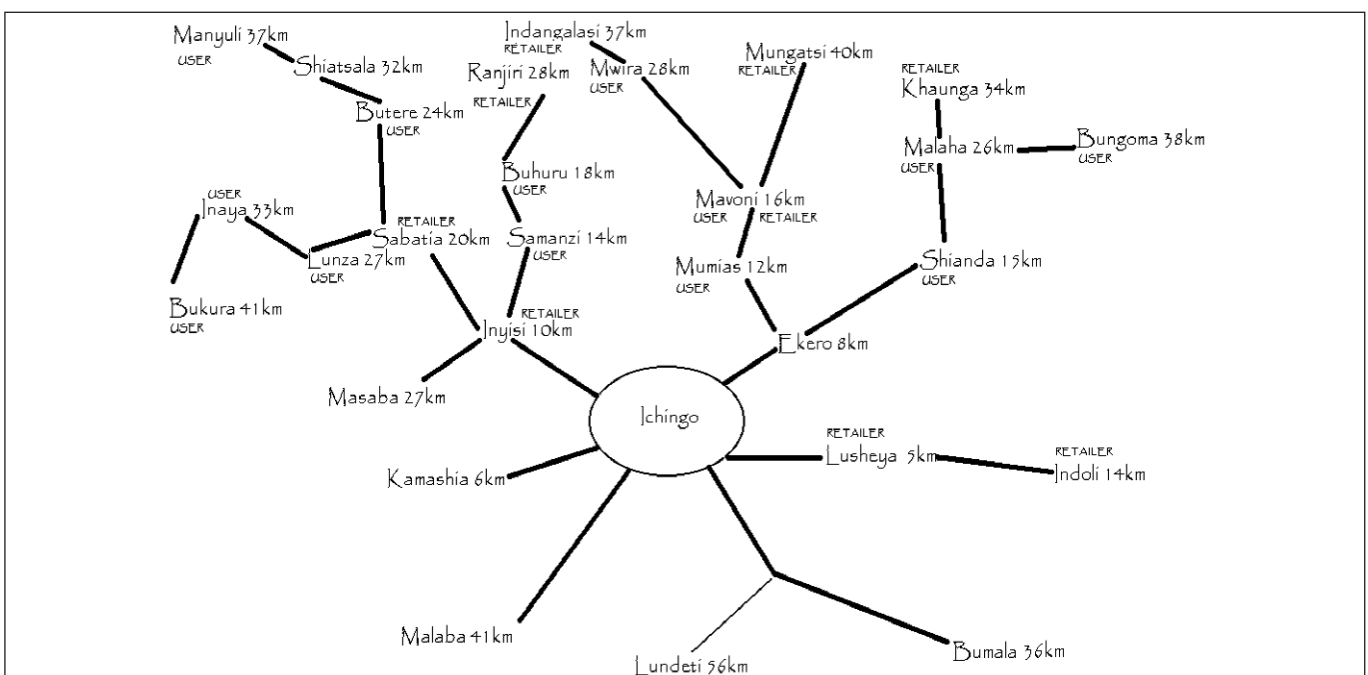


Figure 4 Market linkages and distribution networks for Ichingo Women's group, Mumias, West Kenya.

ITDG sponsored radio promotion in local languages which added value to the stoves image. Drama and songs were used for awareness creation. ITDG also provided advertising bill boards. Posters, banners and flyers were produced in collaboration with intermediaries to ensure that the selling messages were appropriate. The promotion was aimed at creating an awareness of its benefits.

Stove producers and distributors were encouraged to use non-motorised transport to link up to major roads. Over 40 bicycles were provided through mutually agreed repayment schemes. All the transport equipment carried Upesi promotional messages.

Marketing incentives included providing quality stamps for producers and promotion signs for distributors with over 150 stoves. Promoters selling 100 stoves per month were given a bicycle loan and a certificate. Other incentives included tee shirts and trophies.

Benefits to women

The primary intended beneficiaries of the Upesi project were women and their families in rural households of Western Kenya. At the final project evaluation, 16 000 stoves had been manufactured, purchased and installed. Although some of these figures are anecdotal, users of the Upesi stove have described the following benefits:

- Saving of up to KShs 7200 per year (rural wages average KShs 8000 per month)
- Perceived health cost savings of KShs 260 per year
- Time savings of about 10 hours per month
- Substantial reductions in levels of smoke
- Reduction of acute respiratory infections and conjunctivitis in children and mothers
- Women have begun to venture into male-dominated artisanal work, which diversifies their income-generating potential.

Income generation

A total of eight groups, or at least 50 women, were trained directly by the

project. Others trained comprised at least 23 promoters, eight retailers and five distributors. On average, stove producers devoted two to three days a week to stove production. Every active group could sell 510 stove liners and earn KShs 115 300 in a year or KShs 12750 per month. If producers sold directly to users then they could make an extra KShs 50 per stove for installation. Stove promoters made an average of KShs 15 000 per year. As a result of stove-related activities these women were able to enjoy a significantly higher standard of living.

Acquired production and marketing skills also enabled women to travel to distant places to provide training to others. Women from the Keyo Women's group have trained producers in Tanzania on a fee basis. Active women in the producers group have also learned new skills useful for other business ventures. With increased confidence and social status several women have since become active in community development committees. Thus stove production has also provided a launching pad for realising other ambitions.

The active producer groups have also recently convened a network, West Kenya Energy Network, which has been instrumental in the setting up of other production centres and groups in West Kenya, as well as dissemination of other improved energy technologies.

Over all, wider commercialisation of stoves can have a significant impact on community poverty alleviation. With increased income, women are able to help support their families and pay for their children's school fees, thus reducing school drop out rate. This is particularly significant for girls as they are always the first casualties when parents cannot afford school fees. Children of stove producers are also learning important skills for income generation and acquiring knowledge about energy and environmental conservation as they observe and help their mothers. In addition, women producers provide employment opportunities to others to work as labourers in the procurement processing or transporting clay liners and fuel wood for firing the liners.

Environmental conservation

The issue of fuel wood shortage in Kenya cannot be overemphasised. Any technologies that improve the efficiency of fuel wood use have real benefits to society. In West Kenya the Upesi project has introduced an awareness of the need to conserve energy, not only among those households that bought the stoves, but also in many others exposed to stove demonstrations and promotional talks in public gathering and at show grounds.

In much of the project area fuel wood is harvested from live trees and sold in the market. The project evaluation revealed fuel savings of 90 kilograms per month for each household using Upesi stoves, representing 40 per cent savings in fuel use, which can have a positive environmental effect in terms of less felling of trees. The Upesi project has also influenced an international research institute to support improved stoves as part of an effort to replenish and conserve the Kakamega forest in West Kenya.

Equally important is the tree planting encouraged as part of the project, to replenish the wood used for manufacturing the stoves.

Vincent Okello works with Practical Action (formerly ITDG) as an Energy Projects Officer in Kisumu, Kenya, on its current project in scaling up pathways to sustainable interventions for reducing kitchen smoke. Vincent holds a bachelor of arts degree in sociology and economics, and has worked in the household energy, stoves and indoor air pollution NGO sector since 1994, with a bias towards social science aspects of the work. The current work draws its improved stove interventions from the previous stoves' work in West Kenya, which has been variously documented and disseminated nationally and internationally.