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Background

More than two thirds of the population of Kenya rely on biomass (wood, charcoal and agricultural residues) for their energy needs. The majority of biomass energy users live in poor communities that are facing problems associated with the continuous use of inefficient stoves or three-stone fires. Although improved stoves are not the only means of addressing this issue, they play a crucial role in reducing fuel consumption and contributing to improving overall family health and safety in the kitchen.

The Rural Stoves West Kenya (RSWK) Project began in April 1990; it evolved from two earlier projects jointly implemented by ITDG and KENGO (Kenya Energy and Environment Organisation).

- The Wood-burning Stoves Field Test Project aimed to test five existing stove designs in five different zones of Kenya, and to provide guidelines for choosing an appropriate stove design for dissemination in rural areas of Kenya. One clear result was that the GTZ/Maendeleo ya Wanawake's Maendeleo One-pot Stove was deemed by the users in all areas to be an acceptable, affordable stove which met most of their criteria for an improved stove.
- The Women Potter Training Project aimed to assist women potters to increase the profitability of their business through improved product quality and diversification. This included introducing ceramic stoves and stove components as possible products. The Keyo Women Group were trained to produce the Maendeleo stoves, and their early signs of success became the pilot project for the Rural Stoves West Kenya Project.



Equipment for making an Upesi stove
 (Drawing from 'How to make an Upesi Stove: ITDG-East Africa 1995')

Under this project, a market for improved stoves has been developed in West Kenya. It is mainly controlled by women's groups, who have mastered the technology. The current activities are chiefly aimed at commercialisation.

Associated links

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The technology

The improved wood-stove being promoted by ITDG in West Kenya is now known as the Upesi . It was originally known as the Maendeleo stove, because of its promotion in Kenya by the Maendeleo Ya Wanawake organisation, working in conjunction with the GTZ Special Energy Project (SEP).

The Upesi stove goes through several stages before it is ready for installation in a kitchen. It is first fashioned from well-prepared pottery clay, using a mould, then dried for two weeks before being fired in a kiln. The firing takes six hours. Usually, the stoves are unloaded from the kiln one day after firing, when they are cold enough to be handled. The fired stove can be installed in people's houses moulded into a base made from a mixture of mud and stones. Depending on the skills, the installation takes 15 minutes to two hours, once all the material is in situ. After installation, the user has to allow the stove to dry for a week before using it.

Assets and vulnerability

In West Kenya, women's groups produce the Upesi stoves. These groups received their training from ITDG or GTZ. In the past five years ITDG, through its RSWK project, has trained more than 13 women's groups in the art of making the Upesi stoves. However, with time and with more people using the Upesi stove, the question of continued and sustainable production of the stove has arisen.

The continued production of improved stoves by the women's groups in West Kenya will be affected by the following factors:

- quality of the stoves
- availability of raw materials
- the mode of acquisition of the mould
- the ability of the women to buy or maintain a kiln
- the demand from customers/users for the different Upesi stoves
- the sustainability of marketing.



Women in market-place demonstrating stoves
 (photo: Simon L'Epin Ecles)

The main raw material used in the manufacture of the Upesi stoves is pottery clay. All the groups supported by ITDG are within walking distance of their sources of clay. The main difference between the groups being that some pay for the clay, while others only pay for it to be transported to their workshop. The general tendency now is that more and more women's groups will need to start paying for the clay or at least to transport it. This is because most of the land owners on whose land pottery clay deposits are found know that the women are making some money from the sale of the stoves, and they would like a share of the profits.

In the recent past, some women's groups have decided to make an Upesi portable stove. This is similar to the normal Upesi stove, but it is encased in a metal cladding. The women obtain claddings from the informal sector artisans at near-by markets and assemble the stoves using a cement/vermiculite mixture as a binder/insulator. They have thought of buying the metal sheets and making the claddings themselves. While this would raise their profit margins, for now they are better off buying the claddings otherwise they would need to source the metal sheets, and hire an artisan to fashion claddings.

Working with women

Working with women's groups can be a very effective way of reaching rural women.

The advantages include:

- a tendency to add to motivation and sustainability, and ensure some distribution and sharing of benefits within the group.
- reaching comparatively poor, particularly female-headed households
- the potential for social benefits such as increased recognition of women's status, reduced household tension over money, and proportionately greater household expenditure on basic necessities

Women's earning options need to be assessed. Preferences appear to be based on a number of factors, chief among which are:

- a strong preference for working at or near home
- a preference for work involving flexible hours
- a preference for work which quickly turns time into cash
- enjoyment from, and a tradition of, working in groups

Women's groups appear best suited to income-generating activities that:

- involve mainly productive skills rather than management skills
- directly relate individuals' input to output, and hence to earnings. For example; stove making is more suitable than group activities such as managing a posho (maize-grinding) mill.
- It is important to improve the marketing skills of the women where they are involved in an income generating activity.

However, members of organised groups are unlikely to be the very poorest, and groups may be exploited by their leaders, or by outsiders. It is important to note that in-group work, motivation of individuals is important, and they only continue if they realise profits as individuals.

Whose livelihood will be improved?

Obviously, the livelihood of the communities involved in this project has been improved; more confidence in the social contact, access to new goods, relationships with the banking system are some key indicators of this change. The types of purchases (bicycles, home appliances, kiln, land), both at the individual and community levels, give evidence that in some cases the earnings are relatively important. However, in spite of this growing financial independence, the women's workload has increased, since the traditional division of labour within the family remains almost unchanged.

Impact on end users

Stove users stated that the stove cooks quickly, is safe to use (less burning for children), consumes less fuel, keeps the kitchen clean etc. The price that a user pays for an Upesi is repaid in 44 days when the stove is self-installed and in 55 days when the user is charged for the installation. The stove has a life span of more than 3 years.

Impact on communities

Some women's groups employ people to transport clay, firewood or water, for clay preparation and other services. In general it can be said that when the stove-production is doing well, the women's group income is benefiting a large part of the community.

Impact on the environment

At the moment, the clay mining does not appear to put too much stress on the environment. But the potential of environmental damage exists, when stove production increases.

The firewood used for firing the stoves is negligible compared to the physical savings over the life span of the stove. Indeed, just the daily firewood savings by a family are sufficient to offset the firewood used to produce the improved stove. Furthermore, the fact that women's groups need and buy large amounts of firewood seems to have a positive impact on tree planting. Farmers now plant trees for firewood sale.

Policy, institutions and processes

Two key partners with different strategies and status played an important role and, to some extent, impacted on the results achieved by the project.

- The Ministry of Agriculture through the Home Economics Officers (HEO) was a key stakeholder, particularly interested in the dissemination and raising awareness of the consumers. Indeed deforestation is an issue of concern and the Ministry of Agriculture strategy is to support interventions aiming at reducing the pressure on non-renewable biomass resources. Within this framework, the project established close working relationships with the Home Economics Officer (HEO) for awareness raising and for organising training of new producers.

Partnership with Ministry of Agriculture

The Home Economics Officer for example invites the Women's groups trained by the RSWK Project, to demonstrate the operation of stoves during the field days organised by the Ministry of Agriculture. They collaborate also for stove demonstrations during market days. When Home Economics Officers receive a request for training they pass it on to the RSWK Project. Home Economics Officers are involved in training courses given to the Women's groups by the RSWK project. When Home Economics Officers receive a request for training they pass it on to the RSWK Project. When the external funding of the MoA decreased the relationships with the project were affected. The relationship with HEOs is based on practical issues and is maintained because of the personal engagement of certain HEO's in this region rather than because of a nationally directed policy of their ministry.

- The second key player was GTZ who supported the Women Energy project. Although there has been a long-lasting collaboration, especially in production training and awareness raising between the Rural Stoves West Kenya Project and the Women and Energy Project, a common strategy in some key issues has not been developed by them for the region. Unfortunately the subsidy provided for the stove by the Women and Energy Project has had a negative impact on the development of sustainability in commercialisation and production for the RSWK Project.

In comparison to ITDG, GTZ started production generally with high inputs: Kilns, whose costs ranged from 60 000Ksh or 70 000 Ksh up to 300 000 Ksh were constructed and given to the producers, entrepreneurs or women's groups. Their capacities range from 65 liners to 240 liners. Moulds were in most cases provided for free. The chair lady of a women group supported by the WEP, who benefited from such input, considers her kiln a gift from God.

Lessons

Learning from the experience of the RSWK Project, regular quality control is necessary to maintain a good standard of stove quality. The question is, 'who should do the quality control in the long-term?'

A good relationship has been developed with NGO's, church organisations and governmental agencies. Training and support has been provided to them.

Collaboration with the Home Economics Officers and District Home Economics Officers exists informally at a local level, but this collaboration has not reached the official national level. A common commercial approach of the RSWK project and the Ministry of Agriculture and the Ministry of Energy have not been developed, and this has hindered the progress of ITDG strategy.

It will be very difficult for these producers to replace or sometimes even to repair the GTZ kilns, because high expertise is needed for both. The producers are dependent on specialists for kiln construction. When sales (and therefore cash flow) are low, there are insufficient savings for repair and replacement, and consequently, the survival of these production centres is threatened. Furthermore, the high inputs by GTZ have created high expectations from the producers for outside help.

It would be advisable for Ministry of Energy to take over the simpler kiln technology designed by ITDG, and to offer a wider range of types of kilns in order to provide smaller producers with a technology adapted to their means and capacity.

Another difference between the Women and Energy Project and the ITDG project is that the RSWK Project trained the women's groups on pricing and cost-calculation so that they could sell the Upesi at a price that covers fully the production costs and guarantees a reasonable profit. This has not been the case for women's groups supported by the Women and Energy Project. In order to disseminate a maximum number of stoves and in order to reach the poor population, the WEP subsidised (in the form of transport of the stoves) and initially controlled the prices for stoves sold by the Home Economic Officers. The assumption was made that, poorer purchasers especially, could not afford higher prices. Whether this assumption is correct or not is not being discussed here. But obviously as a result of this strategy, few incentives for stockists to buy and sell stoves were developed.

The other result of the WEP-strategy is that the Home Economics Officers had almost a monopoly on the distribution of stoves. Now that the WEP has pulled out and stopped the budget for transportation as well, the women's groups do not know how to organise the transport of their stoves to the stockists. In some districts the Home Economics Officers try to maintain the transport of stoves. Yet this service is not regular because of a very limited budget and means. On the other hand, as long as Home Economics Officers are transporting stoves to the stockists, linkages between producers and stockists will hardly be created, and in some cases they are even prevented. Some Home Economics Officers were active in creating linkages

between the Women's groups but others were not.

The producers on the other hand got used to the service of the Home Economics Officers and are still hoping that this support will continue somehow. Under these conditions it has been difficult for the RSWK project to discuss with them the question of increasing the price for the stoves to a reasonable level such that it covers the production and transport costs.

The women's groups were very reluctant to market their own stoves. Keyo Womens Group only became active in marketing when they realised at the beginning of 1995 that the WEP had really pulled out and did not buy stoves from them any more.

The principle of subsidy may be valid in certain circumstances, however this form of subsidy could only be effective in the short term. Since the stoves cannot be subsidised forever, the moment to introduce realistic prices has only been postponed. One even has to ask if the current problems could have been avoided if the different agencies involved had agreed to implement a common commercialisation strategy.

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