Gender and Compliance with Technological innovation for the Improved Charcoal Stove in Uganda

Ms. Kyokutamba, Joan

Researcher, African Energy Policy Research Network, P.O BOX 7059, KAMPALA, UGANDA
Telephone: 256-41-254071/7 Or 256-71-620696 Fax: 256-41-235119.

E-mail: jkutamba@infocom.co.ug **OR** kyokutamba@ueb.co.ug.

Abstract

As a single energy source, charcoal in Uganda is very important for both urban and rural areas. While technologists and environmentalists have spent a long time trying to develop more efficient and environmentally appropriate stoves, ordinary households still use traditional metal cased charcoal stoves that burn easily and produce a big fire. In the late 1980's, the Household Energy Planning Programme attempted to identify suitable charcoal stoves, laboratory tested them and qualified them for mass production and dissemination. The aim of the project was to improve economic consumption of charcoal and improve peoples' lives. The project was however limited by inadequate programmes and poor policy commitment. This paper is an appraisal of the Improved Charcoal Stove technology innovation in Uganda with emphasis on the role of women as major stakeholders. The impact of supporting programmes for production planning, coordination, dissemination and the plan for sustainability will be analysed. Lessons from similar projects in the region should help in the recommended redress of the programme to facilitate compliance to meet the need for suitable household cooking appliance.

Introduction

Household energy use in Uganda is more than 95 percent dominated by the use of woody biomas. Charcoal consumption in urban areas is by the traditional charcoal stove which burn fast, wastes charcoal and emits lot of unburnt fumes that can be dangerous to health. After almost two decades of the introduction of the improved charcoal stove, the appliance is hardly known or used by many Ugandan households. The price and poor publicity of the improved stove has kept it unknown to many households. Given the literacy levels of the Ugandan population and the fact that women are the main stakeholders of household energy, it would make a difference if policy makers made special consideration to address women groups so as to enhance compliance with the technology. Women involvement would guarantee ownership of the project and guarantee the sustainability of the technology.

The Improved Charcoal Stove Technology Innovation

The Department of Environmental protection, which was responsible for developing the Improved Charcoal Stove set up a mechanism to select and license local Non Governmental Organisations (NGO's) to produce stoves and disseminate them economically. Four majors version of the stove

based on the Kenya Ceramic Stove were developed. They included the Uganda ceramic sigiri, by the Usika Crafts, The Black Power Stove by Black Power Ltd., The Rwashana Associate Charcoal Stove by Rwashana Associate Co. Ltd. and the "Y" stove by the YWCA, Uganda. The characteristics of the stoves include a fired clay liner with metal claddings, a grate and cement / vermiculite mixture used for assembling. The grate improves fuel efficiency and enhances combustion conditions and ensures a better flame stability and systematic airflow. The improved charcoal stove efficiency ranges between 26% - 33%, as opposed to the traditional stove whose maximum efficiency is 24%. (CODA, 1989).

The NGO's had to mobilise funds to increase production capacity through mechanising operations. Usika who built a capacity of 1600 stoves was able to effectively produce only 400 stoves; while Black Power with a capacity to produce 700 managed to produce only 200 stoves. Lack of an established system of marketing and distribution centers for the stoves created serious problems for the stove producers. Producers who operated out of town had to transport the liners for long distances and many of the stoves got broken through handling. Compared to traditional stove producers, production costs for improved charcoal stoves were very high. One improved charcoal stove cost between Uganda Shillings 6000 - 9000 in 1993, about four times the cost of the traditional stove cost which was between Shillings 1500 and 2500. Most poor households that would have been potential buyers of the product would be discouraged by the price. The NGO's also faced competition because a few people knew the efficient performance of the improved stove. "The other constraint arises from the fact that the person who purchases the stove is sometimes not the principal cook. As a result, information on appropriate use of the stove and its advantages is not passed on". (Turyareeba, P.73)

The Gender Involvement

The YWCA was the main women group, which participated in Improved Charcoal Stove production and dissemination. The group, with over three million members in most of the 38 districts of Uganda used its Appropriate Technology Department to train women to make the stoves. The YWCA programme was meant to benefit members by simplifying the role of household food preparation by solving he problem of scarce and poor domestic fuel. The stoves were also capable of overcoming the hazards of accidental fires and toxic fumes in the home. The stove could also guarantee good health for mothers and children because it has the capacity to minimise heat loss during cooking. (Karekezi and Ranja, 1995).

Unlike other NGO's who had to buy their raw materials, the YWCA used local materials of water, anthill soil and construction hay and waste metal parts that could be obtained easily in the home stead. Club members were taught to and encouraged to build similar stoves in their homes by their colleagues. The project was financed out of the Women's Development Fund and other income generating activities like training courses for school leavers. The Appropriate Technology Department generated additional income from the manufacture and sale of the ceramic stoves. By 1993, the Y stove had reached 15 out of the 38 Districts. However, the message was often passed on by word of mouth and no records were kept. Club members who attended the training workshops provided a rough guide of the construction work. Although the Club takes credit for most of the improved charcoal stoves being used in the rural areas, it is not certain that workshop participants can construct a Y stove on their own in their homes. Since the project was not commercial in character, the enthusiasm of the club members to continue the stove campaign soon faded before all households could be reached. The Appropriate Technology Department, which was involved in stove production and dissemination also, encountered the problem of marketing ita products. Most members of the society have not appreciated the quality and efficiency of the improved stove and its economic consumption of charcoal. The level of dissemination of the stove commercially was therefore limited. The technique of providing a brochure with the sale of each stove as was proposed by one reviewer (Turyareeba, 1993) was bound to meet with frustration because the rate of illiteracy among women in Uganda is still very high.

Working with organised women groups have, however often been realised to be a most effective method of reaching rural women with new programmes.

The Kenyan Experience

The Kenyan ceramic jiko has probably recorded the successful charcoal stove projects in the East African region. The ceramic lining has a controllable power output directing 25 - 40% of the heat from the cooking pot. Its efficiency is much higher compared to the traditional metal stove with 10 - 20 %. Open fires are about 10 % efficient. The *jiko* has three pot rests and two handles, three legs and one door to control the airflow. Although the jiko is commonly manufactured in cottage industries, by both mechanised and non mechanised producers, its popularity has been established by participating women groups. All producers of the jiko use it as an employment source and the stove has provided income-generating opportunities for a significant group of the population. Other stove producers have however recorded poor control of quality and their dissemination is only 13% of what they produce per month.

Engendering the Kenya Ceramic Jiko

The Maendeleo stove, which later evolved to become the Upesi wood stove was spearheaded by the women and energy project of the Ministry of Energy in Kenya. The main objective of the project was to improve the living standards of Kenya's rural population and improve fuel availability. The Intermediate Technology Development Group came in to finance the project and to promote its commercialisation. The donors chose to work with women groups because pottery is a task that is well suited for women in rural communities. The group also wanted to maximize the social potential of increasing benefits and recognition of women's rights. Such a situation gives women more control over the household budget. (Khennas, 1999). The stove project developed an approach that would ensure full participation in identifying the group's needs, planning and organising all programmes.

When the project started, nineteen women groups were trained to manufacture the stoves. Ten of the groups are currently actively involved in the stove business, which provides them with household incomes. The women have been taught to control the market dynamics and are able to ensure the quality and right quantity of the stove supply to the market. More than 700,000 stoves have been sold and are now in use in Kenya. Over 50% of the urban households and about 16% of the rural households use an improved charcoal stove.(UNDP, 2000).

Since the project started, the women involved have earned about Kenya Shillings 400,000 from the stoves alone. Other savings from the stove recorded by scientists have been on savings from the daily consumption of charcoal. Households are able to move from consuming 0.67 kg per person to 0.39 kg per person.(

The Tanzanian experience with Jiko bora has been as successful. In 1998, the United Nations Development Programme financed a participatory rapid appraisal study by TaTEDO, which was an attempt to redress the stove's adaptability problems. The appraisal established that the poor method of production, training and marketing of the product was responsible for slowing down the dissemination rate. For more than ten years, the prevailing low sales realised about 150,000 stoves.

Here below is the trend of the improved charcoal stove performance in other countries of Africa.

Table 1

Improved Stoves Disseminated In Selected Countries

Country	Rural	Urban	Total	Year
Kenya	180,000	600,000	780,000	1993
Uganda	-	52,000	52,000	1995
Tanzania	-	54,000	54,000	1991

Ethiopia	22,000	23,000	45,000	1993
Rwanda	-	30,000	30,000	1991

Source: Karekezi and Ranja, 1997

The Kenya ceramic jiko has been the model used by most of the countries where the improved stove has been adopted. In many cases, however, customised adjustments had to be done by the producers in order to fit local cooking habits. Since the gender bias relegates women to do the cooking in most cultures, it has therefore followed that women are the major stakeholders for charcoal stove project wherever the innovation has been adopted.

The Way Forward

The impact that women groups could have on the adaptability of the ICS technology in Uganda therefore need not be over emphasised. There is need to review the policy practice regarding household energy use so as to incorporate the following:

- Identify groups of women to take over the ownership of the ICS technology problem.
- Operationalise participatory methods of reaching women stakeholders in the community and provide them with the necessary production skills that can produce more efficient results.
- Identify a method of regulating standards and quality, which can be identified by users and, which should be maintained by producers.
- Ensure low prices of the products by providing the producers with marketing skills so as to maintain short links between producers and retailers.

Conclusion

Women are a vital group to be focused on whom household energy policy should focus if compliance with the improved charcoal technology is to be realised. The policy strategy has worked in Kenya, has been identified as the missing link in Tanzania and it has the same prospects in Uganda.

References

AFREPREN/FWD,2000 Master Energy Data base. AFREPREN/FWD Secretariat, Niarobi.

CODA (1990). Household energy planning programme (HEPP). Ministry of Energy, Government of Uganda. Kampala, Uganda.

Gakwaya H, (2000) Gender Technological Adoption; The case study of the fuel efficient stove; in A quarterly news letter on energy in Africa, Vol 6 No1 January 2000. Kampala, Uganda.

J. Muriithi, Women and Energy Project, Kenya. An impact study. In Boiling Point (No. 35, March 1995)

Karekezi S. and Ranja T, (1997) Renewable Energy technology in Africa, Zed Books London.

Ministry of Natural Resources & The EC-NFMC Project (1995) A study of Woody Biomass Derived Energy Supplies in Uganda, Contract No. FRP/94/1, Energy for Sustainable Development Ltd, UK

Ndilanha and Sawe, (Issue No. 3. June 1999) Improved Charcoal Stove Industry in Dar es Salaam - Limitations and Opportunities. In Renewable energy and Environment News, Newsletter of the Tanzanian Energy Development and Environment Organisation (TaTEDO)

Ochodomuge, P.E. (1990) IGADD household energy study in Uganda., IGADD.

Teresa Anderson et al (1999) Rural energy services, a handbook of sustained energy development. IT Publications London.

Turyareeba P J 1993. Mobilizing local financial resources; A case study of Uganda (In Karekezi S & Mackenzie G; Energy options for Africa; Environmentally sustainable alternatives, Zed Books, united Kingdom.