

SOLAR COOKING AND FOOD PROCESSING AS AN ALTERNATIVE TO SUSTAINABLE UTILISATION OF THE FUEL WOOD

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1. BACKGROUND

The Association of Zimbabwe Traditional Environmental Conservationists (AZTREC) is a community Owned Non - Governmental Organisation (CO-NGO) based in Masvingo Province South of Zimbabwe. The organisation is implementing a programme on enhancing and revitalising African knowledge systems. Its philosophy is based on culture and cosmo-vision of the indigenous people. The organisation programme thematic areas are Indigenous agriculture, Nature conservation Local technology development, Traditional Health, Culture and Cosmovision. In general the programme is aimed at taking a holistic approach to development that is endogenous and empowering rural women. This paper looks at solar cooking and food processing as an alternative to sustainable utilisation of fuel wood by rural women of Masvingo Province. Under the thematic conservation of sacred woodlands and sacred wetlands, traditional ceremonies and rituals were performed and complemented by planting of indigenous tree species such as mukute (*Syzigium cordatum*) muonde (*ficus carpensis*), mutohwe (*Azanza Garhiena*) etc. The project was implemented through the leadership of the traditional institutions: these are the chiefs and spirit mediums who are the custodians of flora and fauna.

To that effect more than four thousand hectares of sacred woodlands were conserved, above one hundred sacred wetlands of at least ten hectares were rehabilitated, and close to a thousand orchards of indigenous and exotic trees were established. However on this initiative, there was need to provide an alternative to fuel wood (which most rural people of Zimbabwe depend on for cooking, lighting, heating and processing) in order to achieve sustainable utilisation.

2. INTRODUCTION

Zimbabwe enjoys full sunshine for eight months of the year. The sunshine normally benefits farmers who grow their crops to make solar dollars. Plants are able to manufacture their own food during the process of photosynthesis. High quality and quantity produce is achieved by most rural farmers when there is sunshine. Given the abundant sunshine little effort has been done to mobilise rural women towards utilization of solar energy for cooking and food processing.

3. PROBLEM DEFINITION

In some of the areas where AZTREC is operating some women had to go long distances in search of firewood waiting for their woodlot plantations to grow. The activity was taking a lot of productive man-hours and high expenditure on paraffin as an example and other available energy sources.

Processing of food makes it more palatable, nutritious, varied and stable for storage purposes. It also adds value to basic foodstuffs and enables them to be sold to large markets, increasing income and creating employment for rural women. It has been estimated that post harvest losses account for about 20% of total agricultural produce. These losses arise from destruction by pest and vermin, rotting from re-wetting of the crop caused by rain and physical escape of especially small grains. In addition it has also been established that traditional methods of sun drying vegetables leads to considerable losses as vitamins are destroyed by either heat or direct exposure to sunlight.

4. PROJECT AIM

To facilitate community based solar cooking and food processing technologies as environmentally friendly alternatives that can reduce fuel wood utilisation.

5. PROJECT TARGET GROUP

The project was implemented in wards 1 and 2 of Masvingo district and wards 22 and 31 of Gutu district. Three hundred women benefited from this project through receiving training and cardboard box solar cookers.

6. PROJECT OBJECTIVES

- ◆ To facilitate community awareness of environmentally friendly solar cooking and food processing technologies.
- ◆ To strengthen community consciousness on nature conservation through adding economic value to their produce and innovation.

7. PROJECT IMPLEMENTATION STRATEGIES AND RESULTS

AZTREC carried out an evaluation on nature conservation for the project. The evaluation was facilitated by internal and external evaluators. It was revealed that there was need to introduce other alternatives of serving fuel wood in order to reduce further deforestation. On the matter of abundant vegetable and fruit production from gardens AZTREC[?] recommended the introduction of cheap methods for processing the produce taking into account the facts that the women were taking losses when supply is high in the available markets and from poor storage facilities. The following were strategies employed by AZTREC to achieve intended results.

- ◆ Organising a workshop to review the nature conservation project – Forty members representing women's groups attended the workshop.
- ◆ Facilitating the demonstration of solar cooking - Department Technology Centre (DTC) was invited to demonstrate solar cooking. A variety of recipes were prepared of which all the participants were taking notes on how the food was prepared. Each participant had a test of the delicious food cooked by the solar cookers.
- ◆ Input support - Each of the participants was offered a solar cooker in order to be able to go back home and conduct training to at least ten new members.
- ◆ On site training - A training workshop was further conducted in Ward 31 Gutu district being facilitated by Solar Cooker International team in order to further strengthen the efforts of DTC. The workshop focussed much on the local foodstuffs which the women are used to and compared time spent to prepare food by the fire and solar cooker and time saved to carry out other household activities such as gardening, washing and cleaning. Local school children and teachers were also exposed to how food was prepared by a simple solar cooker and had a test of the menu. DTC then supplied two hundred sixty cookkits to AZTREC at a small charge so that the local community women who showed interest to the initiative could buy the solar cookers and use them. All cook kits were bought out by the women after having received training from the core solar cooking trainers.
- ◆ Look and learn visit - AZTREC then organised a look and learn visit of forty women representing solar cooking project members to Nyahode Union Technical College (NUTC) in Chimanimani-Manicaland Province. Women working with NUTC are specialising in solar food processing packaging and marketing. The most important issue is that they process the food they eat so as to become the primary market target of the packaged food. Excess is then sold to local business centres, schools and town. Masvingo delegation were exposed to how a simple solar drying box is made from black polythene plastic, timber and bricks. They also learnt how the foodstuff is collected from the field, cleaned and packed in the solar drying box. They tested some of the dried food such as gooseberries, bananas, mangoes, tomatoes and leaf vegetables. Some was sold to the participants at an affordable price in order to show and share with colleagues back home.
- ◆ Look and learn visit feedback - Ten simple solar drying boxes were made in the four target wards for facilitating training of the membership. AZTREC Secretariat members facilitated the process which was conducted by the members who attended the field trip to NUTC.

8. LESSONS LEARNT

- ◆ All members continued using the solar cookers for at least one year. However following an impact assessment that AZTREC conducted in 2005 it was revealed that 70% of the members were still using the technology. The percentage drop was as a result of the failure to acquire the transparent plastic packs and the aging of the cardboard box.
- ◆ New recipes for preparing traditional menus such as rapoko sadza, cow peas porridge, etc., were developed and tested by trained women.
- ◆ Considering the impact of HIV/AIDS pandemic it was observed that when infected individuals on home based care were given rapoko sadza, both their immune system and appetites were boosted because the sadza is fully cooked.
- ◆ The 30% who dropped solar utilisation also cited reasons such as the relatively long cooking time compared to fuel wood, the need to conduct all the cooking in the sun, and the fact that the cookers do not work in cloudy weather.
- ◆ Fruit and vegetable drying is welcome to most women because priority is given to fruit and vegetables that the family requires as food. Also income out of selling the excess is made from very little work done by an unskilled woman.

9. CONCLUSION

Solar energy utilisation is a very cheap source of energy that is God given. The need to exploit this abundant resource is a challenge to all who receive the energy. More research that is community based and integrated to sound and affordable exogenous innovations is required in order to fully utilise the cheapest resource that rural women are exposed to.