

Community-based energy Briquette Production from urban organic waste at Kahawa Soweto: Informal Settlement, Nairobi

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Abstract

Solid waste management presents a major challenge for many municipal authorities in Sub-Saharan African cities, where rapid growth, social and cultural change, widespread poverty, inadequate and weak local enforcement capacity and limited financial resources all contribute to environmental degradation and waste disposal challenges. Nairobi, the capital city of Kenya, generates over 2000 tonnes of solid waste daily and only 40% is collected and disposed. The city experiences a high level of poverty and unemployment among the poor who constitute over 60% of the population. Many youths living in the informal settlements are highly affected by lack of jobs in the formal sector and to address their plight, they have come up with initiatives to address poverty and unemployment as well as environmental burdens and insecurity in their neighborhoods through recycling waste resources. One major problem that the urban poor in cities of Sub-Saharan Africa have to contend with is inaccessibility of affordable cooking fuel, and it has been shown from numerous studies that the majority of people depend on charcoal for cooking. The residents of Kahawa Soweto village are no exception to this challenge and so Soweto Youth in Action (SOYIA) youth group, in collaboration with Urban Harvest and Kenya Green Towns Partnership Association (Green Towns), developed an action research initiative on making fuel briquettes from urban solid waste generated from the neighborhood and environs with the objective of generating income and providing employment while contributing to environmental management. In the course of the project TERRA NUOVA, the private sector and the University of Nairobi joined the partnership to provide specified technical expertise. This action research project was the follow-up to a larger study on solid waste management carried out in 2003-2004 by Urban Harvest and partners where SOYIA youth group was one of the CBOs that played a key role to the success of that project. The fuel briquette-making project was implemented from February 2007 to February 2008 at Kahawa Soweto village when a pilot briquette production pilot plant was established and had the following items needed for the process: three briquette presses, paper shredder, drying rack and storage/sales facility. Gender responsive diagnostic studies on sources of raw materials and market opportunities were carried out in the village and its environs. Training courses on governance including issues of leadership, conflict resolution and gender, project management with networking, advocacy and resource mobilization components including the technical side of fuel briquette production and marketing were conducted. During the training, gender responsive subcommittees on resource mobilization, production and sale and marketing were formed and developed the rules and regulations for governing their enterprise and a business plan using participatory methods. The fuel briquettes were made from common waste materials and their quality evaluated in a participatory manner. In terms of calorific value, ash content, moisture content, volatile matter, time taken to ignite, time needed to cook a mixture of maize and beans (githeri) and time taken to burn completely to ash; charcoal dust and waste paper type of briquette was received the highest rating followed by charcoal dust + sawdust and waste paper and the lowest rating was given to the ones made from

charcoal dust + maize cobs and waste paper. Based on these observations, the SOYIA youth group is concentrating on producing briquettes from charcoal dust and waste paper and 600 units had been produced in January and February out of which 300 were sold. The briquettes were sold to residents of Kahawa Soweto and environs at Ksh 3-5 (US\$ 0.04-0.06) per piece. Further studies on quality enhancement, possible impact of fuel briquette technology in climate change especially through emission of greenhouse gases and health risks from indoor pollution particularly on women and children need to be given attention.