

**Impact of Urban Wood Energy Demand on The Countryside Resources
The Case of Charcoal Production in Msimbu and Chole Villages in Kisarawe District**

By

Justinian Bamanyisa

[M.Ä (Development Studies), University of Dar es Salaam]

(2003)

Abstract

The primary objective of this study was to determine the impact of urban wood energy demand on countryside fragile ecosystems. The study specifically focused on charcoal production in Msimbu and Chole villages, in the peri-urban of Dar es Salaam city. It sought to determine the impact and effects of environmental degradation caused by charcoal production in Kisarawe District, as well as the demand of urban wood energy. Further, the study examined the mechanism by which rural people coped with the negative effects posed by charcoal production to meet urban wood energy demand.

For the purpose of this study, a case study design was used. The study was based on an empirical investigation which could be classified as descriptive and exploratory study. It was designed to give a more empirical reality by presenting the main statistics and some qualitative representation of the impact of urban wood energy demand on the countryside resources in Tanzania.

This study was carried out in two villages — Msimbu and Chole in Kisarawe district. The criterion for selecting these villages was mainly based on the distance from charcoal consumers (Dar es Salaam city). Msimbu, in Sungwi ward, is about 50 kilometres from Dar es Salaam. Chole, in Chole ward, is about 85 km south of Kisarawe town and about 115 km from Dar es Salaam. Both villages share the same topographical characteristics. These villages were selected after holding consultations with district officials who were much more familiar with the local situation.

Four main techniques were used to collect primary data for this study. These included: direct observation, interviews, questionnaires, and focus group discussions. Direct observation was used extensively throughout the study. The researcher kept his eyes open witnessing mounts of charcoal kilns and hips of bags ready for transport/sale, bags of charcoal on trucks, bicycles or on heads of people. He walked through forests to observe conditions described by informants or in reports, and visited charcoal kilns, truck yards, bus depots and checkpoints. He observed the flow of

charcoal into Dar city while monitoring entry checkpoints to determine the volume, points of origin and destination of charcoal.

Open-ended interviews with key informants in the study area were also conducted. Key informants included: village and sub-village leaders, and experienced charcoal dealers and producers. Many interviews were conducted at household level (in people's homes). Other interviews were more focused to individuals on specific topics. The respondents included charcoal makers, charcoal dealers, and bus drivers who buy small amounts of charcoal on their way to Dar es Salaam and sell them for profit in Dar. Also, informal interviews were carried out with some extension services personnel-particularly in the following central and local government departments: forestry, agriculture, community development, administration and land. The information sought from these interviews was to assess the trend of fuel wood supply and demand in the study area, land use change, loss of biodiversity and water shortage due to degradation of water catchment areas

Structured questionnaires were used mainly to establish the socio-economic and cultural of the studied population their past, current or future access to natural resources, their attitudes natural resources, including their opinion on current practices and the effects of ever accelerating wood energy demand by Dar es Salaam residents.

The focus group discussions mainly sought information on community size and composition, impact of charcoal production on different categories of the population (e.g. youths, elders, women, men, etc.) and on community activities (such as cropping pattern, ecumenic activities, environment and resources management, trends or rural-urban migration, etc.). Rituals and traditions as they related to resources management and conservation were also discussed. The primary aim was to establish how the foregoing aspects were affected by charcoal production.

Secondary data were mainly gathered through documentary reviews. Many documents (in terms of books, research reports and other academic publications) were accessed at the University of Dar es Salaam's main library, and specialised libraries at the Institute of Development Studies (IDS), Institute of Resources Assessment (IRA) and the Economic Research Bureau (ERB). Also, documents were obtained from the Ministry of Energy and Minerals, the National Environment Management Council (NEMC), and United Nations Information Centre. Other secondary data were also accessed through the internet.

Purposive sampling was employed to get the two villages referred to above. This was to enable the researcher to determine the intensity of degradation as one farther from the city of Dar es Salaam. A figure of at least 40 respondents from each village was aimed at. To get these, the study employed systematic random sampling by using lists of sub-village households made by the researcher with the help of sub-village chairpersons. When it happened that a person was unwilling to be interviewed, the person next was selected.

To get the respondents for the questionnaire to be administered to charcoal dealers (burners, buyers, sellers, etc.), random sampling was employed. Those who were currently involved in the charcoal activities were the only ones who were interviewed. Here, the researcher made spot visits and waited at checkpoints.

In total, the sample size for this study consisted of 115 respondents, distributed as follows:

- Eighty-seven heads of households; 33 from Msimbu village and 54 from Chole village;
- Twenty charcoal producers/dealers;
- Four district officials; and
- Four village/sub-village leaders.

In this study, both qualitative and quantitative data analysis techniques were used. The data were coded, entered in computer, processed and edited using the Statistical Programme for Social Sciences (SPSS).

The findings revealed that charcoal production done in the peri-urban areas was primarily for commercial purposes to meet the growing urban wood energy needs. Charcoal production was formerly devoted to when one was in need of cash to meet basic socioeconomic needs. However, with growing wood energy demand by the urban people, the business became a full-time activity. At the time of this study, more than 50% of the villagers were engaged in the charcoal business. The most active people in charcoal production, then, were migrants from different regions - particularly Morogoro, Lindi, Dodoma, Tabora, Shinyanga and Mbeya. Approximately 4.5 million tons of charcoal were transported annually to Dar es Salaam from Msimbu and Chole villages.

It was observed that the factors that pushed people to engage in these activities, apart from high urban wood energy demand, were poverty, unemployment and ignorance of the negative impact of over-exploitation of forests. Traditionally, charcoaling activities were men's domain, but due to the need for income, women were also becoming famous buyers, transporters and sellers at the urban market.

The effects of these non-environmentally friendly activities ranged from ecological to social impacts. Whereas the ecological impact included deforestation, loss of biodiversity, soil erosion and degradation of water catchments; the social impacts ranged from rural fuel wood shortages to food shortages. In particular, the socio-economic effects included: shortage of household fuel-wood, long distances to the few surviving sources of fuel-wood, neglect of agriculture and increased burden to women who the main gatherers of fuel-wood. The aftermath of all of this was the prevalence of poverty in the area. Moreover, the study noted that so far there were no serious and purposive efforts by the Government to address the negative effects of charcoal production in the study areas.

In order to address environmental degradation, the study recommended that there was need to balance the supply and demand of wood energy resources. The study suggested the following as the possible ways of enhancing supply of fuel-wood:

- Establishment of peri-urban plantations which fitted very well within the traditional forestry department ethos and planning process. This is mainly because the costs and benefits of large-scale plantations were easy to define and, administratively, peri-urban plantations fitted comfortably within forestry department structures and drew upon the store of available skills. Further, these plantations could play a positive role in improving the environment by creating green belts and increasing urban amenities;
- Management natural/ woodlands- This was considered to offer a more fruitful route for enhancing urban fuel-wood supply because it was relatively cheaper than other ways;
- Encouragement of smallholder farmer fuel-wood production - This further could help in addressing poverty; etc.

In response to the impacts of charcoal production on the supply area, the study recommended, inter alia, the following:

- Awareness raising-There should be awareness creation and sensitization among stakeholders of forestry resources to make them understand all the impacts of overexploitation of the resources and measures for resource conservation;
- Establishment of village forests reserves The Government should encourage the establishment of these reserves to ensure proper management of forests and minimise the influx of people from outside the district;
- Formulation of by-laws and regulations The Government should encourage village communities to establish and implement by-laws and regulations for forest resources;