

INTEGRATING ENVIRONMENTAL ASPECTS IN PLANNING FOR ENERGY
SUPPLY IN KENYA: A CASE STUDY OF THE DOMESTIC ENERGY IN
CHERANGANI DIVISION, TRANS-NZOIA DISTRICT

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ABSTRACT

This study was carried out to assess the woodfuel supply and demand system in Cherangani Division, to examine the factors that influence woodfuel supply and demand, to examine environmental problems resulting from the current supply and demand of woodfuel, and to attempt planning strategies in which future energy supply can be met with the least effects on the environment.

The study is a cross-sectional survey consisting of male and female households in the Division. The sample was drawn by simple random sampling. It consisted of 140 households, 10 key informants and 10 woodfuel dealers. The household was taken as the sample unit and the heads of households as the main respondents.

The research instrument consisted of interview schedules consisting of 'open' ended and 'closed' ended questions. In addition, direct observation was used to collect in depth information. Besides the schedules, woodfuel consumption monitoring was done in a few selected households. The data was analyzed by descriptive statistics, especially through cross-tabulation.

Various theories, models and research questions were utilized to guide the study and more especially to help in the interpretation of the findings. The systems analysis theory was used. The study also used the 'planing type model' of energy, the 'gap' theory and the communication model.

Unique and interesting results were arrived at in the study. Woodfuel consumption monitoring revealed that there was an average consumption of 1 kg of fuelwood per capita daily; denoting scarcity. The purchasing of woodfuel and the use of agricultural residues as fuel, were further testimony to the appalling status of woodfuel in the study

area. However, despite the scarcity, most households have not adopted the use of alternative energy sources such as, solar, biogas, electricity, among others.

It was consequently found out that socio-cultural and economic factors have no major influence on the supply of domestic energy resources in the Division. This is because the problem seems to be one of insufficient biomass and lack of the awareness about the importance of agro-forestry trees for fuelwood production on the one hand, and the lack of awareness about the availability of cheap alternative sources of energy on the other. The study also revealed that the current supply and demand of domestic energy resources in the Division has led to a number of environmental problems. Indoor pollution was the most notable. This is because, most households, 98%, used the 3-s-h as the main cooking facility. This facility also wastes a lot of energy due to its low efficiency.

In *lieu* of the above, planning strategies have been suggested that can help to increase the supply of domestic energy in the Division in the future, while conserving the environment. The strategies include the adoption of various agro-forestry practises, biogas harnessing and fuel conservation.

The agro-forestry development proposed includes alley cropping, planting of trees and shrubs along property lines, planting of trees and shrubs along roads and paths and the establishment of windbreaks. Thus, the above strategies can be realised through mass awareness campaigns. A public information package has, therefore, been suggested. The study has also attempted a domestic energy supply and consumption matrix. With the adoption of the above, therefore, environmental degradation arising from the supply and demand of domestic energy in the Division is sure to reduce.