

Impact of woodfuel demand on Marsabit forest

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Abstract:

Agricultural wastes are a possible resource for the establishment of rural industries in many, especially tropical, parts of the world. This thesis considers the critical problems of monoculture plantation economies, particularly on isolated islands, and analyses possible strategies to use wastes beneficially. The concepts are amplified, for sugar-cane by-products, by a series of case studies of attempts to produce higher value products from them. Detailed investigations into the establishment, and subsequent performance, of a bagasse particleboard factory and an active dried bakers yeast factory, both in Mauritius, are given. A comparative study is made of some existing. 'Third World' cane spirit distilleries and alternative small and medium scale processes for bagasse pulp and paper production. From the detained case studies broader conclusions are drawn on the introduction of new technologies as a historical process; the design process involved in investigating and implanting new technologies and how, in its absence, completely inappropriate technologies may be chose; technology as not just the production machinery but also the set of social relationships which enable the product to be produced and used in a given society; the need to search for more alternative technologies before starting the design process; and the effects of conflicts of interest upon technological decision-making. Marsabit Forest is located in one of the designated ecologically sensitive sites in Africa. The forest is the primary source of wood for fuel, construction and meets other needs for the local communities. The ecological and socio-economic consequences of woodfuel demand from the forest were examined. Empirical field measurements and questionnaires were used for data collection from the local households and institutions. Linear regression and t-Test methods were used for data analysis. The total woodfuel consumption by the sectors studies was approximately 56000 tons/yr. The rate of deforestation attributable to large-scale harvesting of wood for fuel by the institutions was estimated at 1.6 hectares per year. This resulted in serious loss of indigenous tree species notably; *Olea* spp., *Teclea* spp., and *Diospytos scarbra*. A typical household in the rural areas was found to spend over 90 man-days/yr on wood gathering. Thus women and children, who are primarily responsible for gathering wood, spend enormous amount of time and energy in this exercise at the expense of other productive activities. Moreover, the forest, like other forest resources in the ASAL areas of Kenya, is subjected to the so-called "tragedy of the commons" type of exploitation. Consequently, every member of the community wanted to maximise their individual and/or collective benefit(s) from the common resource without the due consideration to its sustainability. To control further degradation of the forest, further harvesting of *Olea* spp., which is one of the protected hardwood species in Kenya, should be banned. Woodfuel conservation should be enhanced through wider and more efficient use of energy-saving technologies. Cultivation of cucurbitaceae plant species whose roots can be used for fuel is recommended. Suitable planting sites and tree species should be identified to encourage planting of trees in the local schools, around small townships and degraded settlement areas. Cost-effective techniques of harnessing solar energy should be prompted in order to provide the local community with a viable alternative/supplement to woodfuel.