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## Typical Farms in the Bio-Energy Value Chain: A Village Case Study in Tanzania

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### Abstract

Traditional biomass, particularly firewood, plays a significant role in rural household energy consumption. However, high rate of deforestation and continuous loss of biodiversity in most of the developing countries has been linked to over exploitation of forest resource and continuous dependence of rural habitant on biomass. As postulated by the literature, excessive biomass consumption can be reduced through biofuel production. This paper therefore seeks to determine the present and future participation of a typical household farm in the bioenergy value chain by addressing these questions: (1) What are the main factors influencing the household energy consumption? (2) Which of household groups cultivate more of *Jatropha* plant?

The primary data used in this analysis are drawn from a surveyed cross sectional data set of Tandai village households located in Morogoro region of Tanzania in 2010. Income categories' statistical t-test results of the surveyed households shows variation in some of the households' socio-economic factors and their per capita firewood consumption. The rich households consumed more of firewood than the poor households. More so, they were found to have more land and more household members compared to the poor households. The result of a multivariate regression analysis further proved the significant effect of wealth and household size on household total energy consumption. The alternative sustainable prospective energy source *Jatropha* plant has been found to be more cultivated on the rich households' plots than by poor households. Chi-square-test results show a higher percentage of hired labour for the rich households compared to the poor ones.

**Keywords:** Bioenergy, firewood, *Jatropha*, wealth