

**Socio-economic factors influencing adoption of biomass energy technologies for cooking:
the case study of Moshi municipality and Moshi rural district, Kilimanjaro region**

Nyamambara Alexander Songorwa

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University of Dar es Salaam, College of Social Sciences, 2017

More than 90% of households in Tanzania rely on biomass for cooking. Biomass is mostly used in the form of firewood and charcoal. This heavy reliance on the biomass energy has become a threat to the environment especially the forestry sector over the past years. As part of managing the situation improved biomass fuels and cookstoves were introduced. These include; biogas, fire/charcoal briquettes and biofuel. Improved biomass stoves for both firewood and charcoal were also introduced. These biomass technologies for cooking aimed at reducing quantity of wood households used for energy, which would ultimately reduce pressure on local forests. However, despite the demonstrated technological multiple benefits and the institutional promotional efforts of these technologies; the adoption level has remained low. An important question investigated in this study was what socio-economic factors influenced adoption of these technologies? Households' socio-economic status, unwillingness and inability to switch as well as low government support in promotion were regarded as barriers which contributed to low adoption of biomass technologies for cooking. This study therefore, sought to assess socio-economic factors influencing the adoption of biomass technologies for cooking in Moshi municipality and Moshi rural District. The Marxist critical and Rogers' diffusion of innovations theories were employed by this study to understand those socioeconomic factors. The study used cross-sectional research design and executed a triangulation of quantitative and qualitative research methodologies to collect data. The results showed that culture had a strong influence on adoption than other factors. Households' income also influenced alternative fuels and cookstoves that were used. Small sizes of the improved firewood stoves, inflexibility and inability to cook with un-dried firewood forced households which had installed the stoves to keep on switching between the improved and unimproved stoves. The study also revealed that households were willing to switch to improved technologies but were unable to due to money constraints. The study finds out that popular biomass fuels and cookstoves such as firewood and charcoal were highly adopted by households while unpopular ones such as biogas, briquettes and biofuel were either less adopted or were not adopted at all. In order to increase adoption of these technologies, it is very important that the technologies are created so as to fit the culture of the people. Also the government and NGOs need to promote these technologies through mass media so that the people know them. The government should also subsidize these technologies so that they are sold at a low price. Finally, cheaper biomass technologies need to be promoted more since the majority can afford them.