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## Demand and Supply Side Upgrading Strategies in the Bioenergy Sector of Tanzania

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### Abstract

Globally around 2.4 billion people, 90 % of them in developing countries, still depend on so-called traditional energy carriers such as firewood, charcoal, crop residues and dung. WTO estimates that on a daily basis two million tonnes of biomass are consumed for cooking purposes (including water boiling). Harvest and use of woodfuel done in a sustainable way must not cause deforestation. However, deforestation and forest degradation due to unsustainable wood extraction or land clearing practice emerged and the distances covered to collect firewood in rural areas can be substantial. Improved, fuel efficient cooking stoves hold the potential to assist firewood (and charcoal) users on the consumption side by saving fuelwood and reduce the time that women have to spend on fuelwood collection, processing and cooking up to 50 %. Within the Trans-SEC project – taking place in Tanzania - a baseline study illustrates the firewood situation in Dodoma and Morogoro Region before several Upgrading Strategies (UPS) were implemented within four case study sites. As part of a master´s thesis this study will present a framework to evaluate possible effects on firewood consumption as well as production after implementation of two upgrading strategies namely “improved cook stoves” and “improved on-farm wood supply”. Objective of the former UPS is to design, build up and disseminate “improved cook stoves” (ICS) which will maximise thermal and fuel efficiency and therefore decrease the amount of fuel used. Additionally ICS should operate safely and minimise emissions harmful to human health - known as indoor air pollution. The latter UPS “improved on-farm wood supply” will contribute to capacity building on tree planting and is aiming at fuelwood autarky in the long run. Trans-SEC launched these UPS at the case study sites in January/February 2015. The framework and further research from October 2015 onwards is mainly aiming on aspects of dissemination and usage of the stoves. Based on measured changings in firewood consumption and stockpiling of single households story lines to meet the energy demand per year in a sustainable manner will be scrutinized.

**Keywords:** Agroforestry, bioenergy, firewood, improved cook stoves, on-farm trees, Tanzania, upgrading strategies, woodfuel

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