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## Food Security Impacts of Rural Households’ Employment at a Large-Scale Biofuel Project in Madagascar

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### Abstract

After the initial hype in 2007/08 and the subsequent downfall of Jatropha, Jatropha production is currently still being promoted and new projects are being undertaken. Besides economic, agronomic and environmental questions, doubts exist on the social dimension of sustainability. There is little evidence quantifying the socio-economic impacts of large-scale production of Jatropha on smallholders mainly due to a lack of baseline studies and detailed data collection.

This paper seeks to make a contribution to addressing this knowledge gap by making use of panel data collected between 2008 and 2014 for 390 randomly selected households in three villages in the vicinity of a large-scale Jatropha plantation in Madagascar. The main objective of this study is to provide insights into relationships between employment on the plantation and household income and food security. As indicators of food security, we use diet diversity and food expenditures for a recall period of seven days, as well as more mid- and long-term indicators like the length of the food gap. Impacts on income and food security are estimated with the help of a fixed effects model.

Former studies showed that wage employment by smallholder farmers on the plantation has significantly contributed to income poverty reduction and reduced income inequality. Focus group discussions revealed that wage income derived from daily labour on the plantation, in particular during the off-season and droughts, helps to increase households’ resilience against climate variability. Nevertheless, as the labour demand by the plantation declined substantially after the build-up phase in 2010, very few regular jobs have been created. Plantation incomes are mostly used for food and other necessities and only a small percentage is invested in agriculture or business. Results from the fixed effects models show that the number of days as well as the number of household members working on the plantation contribute significantly to an improved food security.

**Keywords:** Biofuels, food security, Madagascar, smallholder farmers, socio-economic impacts