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The Futures of Food Security and Poverty under Climate Change in the Blue Nile Sub Basin Agriculture System

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Abstract

The Blue Nile sub basin is has an important ecological and livelihood role for millions of farmers in Ethiopia as well as in the Nile river system. In fact this important basin serves as the epicentre of agricultural livelihood in Ethiopia. However, this important agriculture system is being threatened by climate change forces. Moreover, prolonged droughts, coupled with periods of flooding have underscored the agricultural sector's capacity to adequately respond to weather shocks. Studied so far have used household level analysis of the impact of climate change and adaptation. However, there are at three least major gaps in the empirical studies (1) most of these analysis did not incorporate the cost and benefits of adaptation to climate change (2) they are not based on simulation of the effect of future climate change ((3) lack system level analysis of the impact of climate change and adaptation on food security. In this regard, the objective of this study is to analyse the impact of climate change and the benefit adaptation in the Blue Nile basin food system. The study used various secondary data sets from different sources including the Ethiopian standard Measurement survey, National Meteorological Station, Ministry of Agriculture. The TOA-MD model was presented as a method to evaluate the impacts of climate change and adaptation strategies using the kinds of data that are typically available such sub system level analysis. The result of the analysis shows climate change is likely to have adverse effects on food security and poverty of the farmers in the sub basin, with between 80 and 90 % being affected and not able to cope. Moreover, the food security impact is more pronounced than the poverty impact in the short run and the poverty impact is more pronounced in the long due to the small farm sizes and limited access to alternative livelihood activities other than farming.

Keywords: Blue Nile Basin , Food security, poverty , tOA-MD Model