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“Development on the margin”

Quantifying Current and Future Climatic Risks to Cereal Production in Ethiopia as a Basis for Informing Adaptation

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Abstract

Agricultural development is key to reducing severe hunger and poverty and contributing to environmental sustainability (Millennium Development Goals 1 and 7) in Africa. Agricultural systems will face increasing challenges to meet the growing food demand with less water and less land resources. Climate change is expected to put additional stress on the systems. The extent of hazardous impacts of change will depend on the resilience and adaptive capacity of agriculture, which are determined by natural and socio-economic conditions and differ depending on the region and country.

Ethiopia's agriculture, on which the majority of the population depends, is already seriously constrained by current climatic variability. Despite growing efforts to reduce greenhouse gas emissions, likely impacts of climate change, such as more frequent and more intense droughts and floods put adaptation strategies high on the policy and research agendas. Important questions include: (1) What are the climate induced risks and opportunities for agriculture in vulnerable regions and (2) What are the resilience trajectories of different farming systems under climate variability, climate change and other global changes?

The Finnish-Ethiopian-Dutch collaborative research project AlterCLIMA aims to (i) develop a methodology for addressing these questions, (ii) identify and evaluate alternative adaptation options, the potential of mitigation options and their integration into rural development strategies for selected regions, and (iii) build capacity at Ethiopian and Finnish research institutions to apply the scientific-technical methodology and knowledge base. The project focuses on two contrasting case studies namely, the Central Rift Valley (CRV) with good access to markets, and the remote and highly populated North Wollo district.

In this paper, we present methods, tools and some results of the agroclimatic risk analysis for current and alternative future conditions as a basis for assessing adaptation and mitigation options in the CRV.

Keywords: Adaptation, climate change, climate variability, mitigation