Economic Evaluation of Adaptation Measures to Climate Change under Uncertainty: The Case of a Kenyan Irrigation Development Project

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As climate change adaptation is becoming a recognized issue, the needs are growing in terms of evaluation methodologies of adaptation-related public investments that could reflect the uncertainties of climate change. As an application of the Robust Decision Making (RDM) approach, we conduct a case study of a Kenyan irrigation development project to evaluate the effectiveness of the project on climate change adaptation under uncertainties of climate change and socioeconomic factors through a combination of model simulations. Our first results, which provide a bottom-up perspective of climate change impact on African agriculture, show that despite uncertainties of precipitation trends, high temperatures resulted from climate change have a clear tendency to reduce farmers' income due to loss of crop yields, and that irrigation development will mitigate that income loss, i.e., it will likely be effective as a means for climate change adaptation. We are currently in the process of making systematic assessment of uncertainties identified in our results based on robustness metrics.

Keywords: climate change adaptation, uncertainty, robust decision making (RDM), economic assessment, irrigation, Africa

