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## Anticipating economic, social, and environmental impacts of rainwater management strategies using the ECOSAUT model: The case of Blue Nile Basin

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THE MELKA WATERSHED IN JELDU DISTRICT, WEST SHOA ZONE, OROMIA REGIONAL STATE, ETHIOPIA (PHOTO BY KINDIE GETNET, JULY 2011)

### Key Message

To be sustainable, rainwater management strategies need to be evaluated against both economic, social, and ecological criteria. Similarly, upstream-downstream interactions and trade-offs need to be considered.

## Summary

Using the watershed as a planning unit, this study investigates the consequences and impacts of rainwater management in the Blue Nile basin. The purpose is to develop adaptive rainwater management strategies that maximize economic benefits without undermining ecological and environmental sustainability. The approach adopts the ECOSAUT model developed for the Andes region as an analytic tool for integrated decision making process that weighs costs and benefits of various goods, services, and functions of a watershed ecosystem. Negative and positive externalities, including upstream-downstream interactions and trade-offs, enter the optimization process to reflect the true costs and benefits of spatial and temporal decisions involving resource allocation and rainwater management. Rainwater management scenarios can be developed and their impacts can be simulated ex-ante to guide decision making at farm, community, watershed, and policy scales. The costs of environmental services can be estimated to inform management options such as payment for environmental services (PES). (Note: Please refer to Quintero, M., Ruben, D. E., and James, G. (2006). A manual for ECOSAUT: A model for the economic, social, and environmental evaluation of land use. International Potato Center, Lima, for information about the ECOSAUT model.)