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Monitoring and modeling: Supporting decisions for livelihood improvement in the Ethiopian Highlands of the Blue Nile Basin

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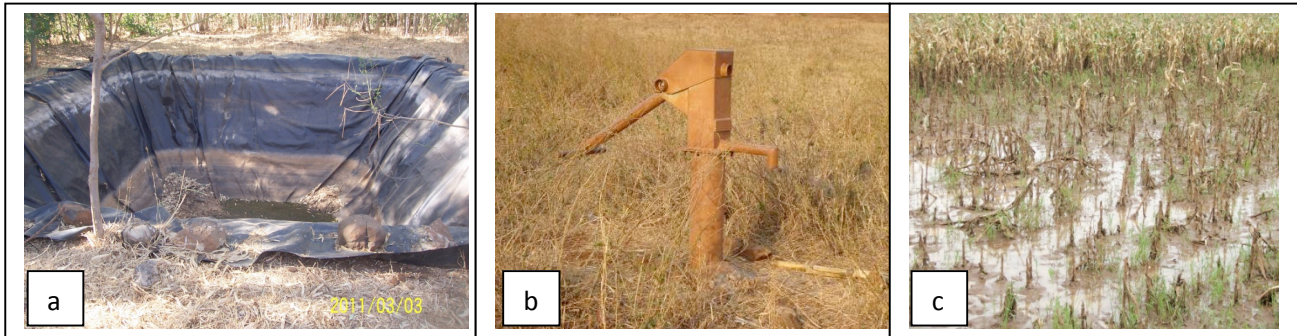
Key Message

1. Full scale, high resolution hydro-meteorological monitoring will improve decisions towards appropriate Rainwater Management Strategies (RMS) and hence livelihood improvement. 2. Appropriate basin wide decision support tool based on hydrological and agro-ecological systems is required to prioritize suitable RMS, and study downstream impacts and ecosystem services.

Summary

In the Ethiopian highlands of the Blue Nile basin, lack of critical water supplies is one of the major reasons for low agricultural yields and cropping intensities and thus poor livelihoods. In these areas most past efforts in Rainwater Harvesting (RWH) have not produced desired results as these efforts were not based on sound agro-hydrological and integrated management systems. New Integrated Rainwater Management Systems (IRMSs) need to be designed based on the landscape concepts and available water under varying agro-hydrologies to meet the demands of all sectors including ecosystem services. The new IRMS approach requires a good understanding of the hydrologic systems and employment of models to assess the impacts of various scenarios. This paper aims to fulfill exactly this gap by first

providing primary biophysical information at a watershed level, and then designing an appropriate basin wide decision support tool. For this purpose hydro-meteorological monitoring stations were established and the information obtained at the watershed level will be used to develop tools that address issues of water availability and use under various storage systems. The developed tools will then be scaled-up to basin wide level to prioritize different RMS, study ecosystem services and downstream impacts of RWM.



(A) ONE OF THE FAILED RAIN WATER HARVESTING (RWH) STRUCTURES IN FOGERA DISTRICT, SOUTH GONDAR, ETHIOPIA. (B) NON FUNCTIONAL HAND PUMP IN MADA JALALA AREA, DIGA DISTRICT, EAST WOLLEGA PROVINCE, ETHIOPIA. (C) FLOODING OF GUMARA RIVER, FOGERA DISTRICT, SOUTH GONDAR, ETHIOPIA (PHOTOS BY BIRHANU ZEMADIM (2011) AND MATTHEW MCCARTNEY)