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Rainwater management systems for enhancing food security, resilience and adaptation to climate change

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RAINFED CROP-LIVESTOCK SYSTEMS IN THE BLUE NILE BASIN, WHERE CROP PRODUCTION IS CLIMBING TO THE WATER TOWERS (PHOTO BY T AMEDE)

Key Message

Rainwater management (RWM) is an integrated strategy that enables communities, local governments and practitioners to systematically map, capture, store and efficiently use runoff and surface water emerging from landscapes in a sustainable way for both productive and consumptive purposes. It aims to decrease unproductive water losses (runoff, evaporation, conveyance losses, deep percolation) from the system, improve ecosystem services as well as increase water productivity of agricultural systems thereby improve returns per unit of investment. This also calls for developing local and national policies to finance and facilitate the implementation of RWMs.

Summary

Under the pressures of population growth, climate change and development aspirations, water is increasingly considered as a key factor in socio-economic development in Sub Saharan Africa. This will require broadening of the global water debate from its current focus on managing blue water resources, towards more integrated management of water resources in the soils, landscapes and basins; and considering rainwater as an integral concept encompassing both blue and green water resources.

Unlike conventional wisdom, rainwater management focuses both on the institutions and policies as well as the technologies; it advocates for both water storage and water productivity at various scales. It is an effective strategy to manage the consequences of climate change (e.g. floods and drought) by combining water management with land and vegetation management strategies. It is also about managing soils and landscapes to capture and store water in the rhizosphere through minimizing evaporation, maximizing soil infiltration and enhancing soil water holding capacity. This is particularly critical for drought prone regions of SSA, where variable rainfall and end-of-season drought commonly reduces crop yield, risk of crop failure and causes feed shortage.

This paper will display rainwater management systems, using case studies from the Blue Nile Basin, combining technologies with institutional arrangements and policy framework towards achieving improved water management, adoption and dissemination of interventions, enable local changes and facilitate linkage among system components.