



UNESCO-IHE
Institute for Water Education



Hydraulics Research Center
مركز البحوث الهيدروليكية



Spate Irrigation
Network Foundation



RESEARCH
PROGRAM ON
Water, Land and
Ecosystems

Introduction

The research project “**Harnessing floods to enhance livelihoods and ecosystem services**” is funded by the CGIAR research program on Water, Land and Ecosystems and it is being implemented in the Gash area in Sudan by the Hydraulics Research Center (HRC) of the Ministry of Water Resources and Electricity over the period Jan. 2015 to Dec. 2016 in collaboration with partners, Spate Irrigation Network Foundation (leading partner), MetaMeta, UNESCO-IHE and Mekelle University.



Harnessing Floods to Enhance Livelihood and Ecosystem Services

The Research Problem

Recognizing the importance of Flood-based Farming Systems “FBFS” for local livelihoods and economies, the Sudanese government supported by donors such as IFAD started investing in the improvement of infrastructure (weirs, intake and canals) and on-farm practices to enhance agricultural productivity.

However, it is unknown how these interventions at scheme level interact with other functions provided by floods at the local and landscape level and how these interventions affect livelihoods of different stakeholders.



The Research Objectives

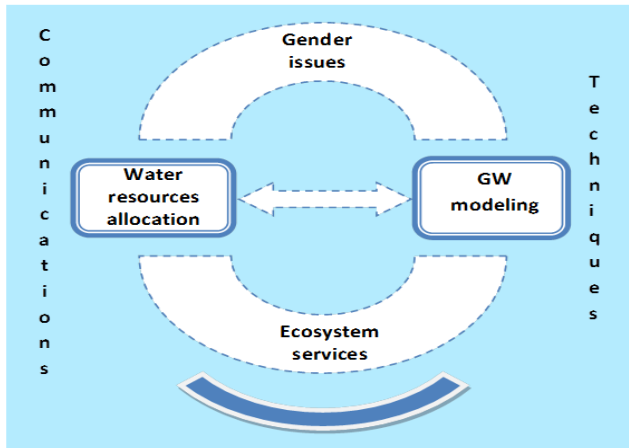
This research aims to optimize the use of floods for agriculture and ecosystem services to support livelihoods settings in the Gash, Sudan.

To study the interventions at Gash scheme level and how these interventions affect the livelihoods of different stakeholders.

Methodology of The Research

System management

The main goal of this research is to assess different development scenarios in the Gash Agricultural Scheme and evaluate the implications on groundwater level, and the ecosystem services in the Gash Die.



Allocation of Gash River floods

The RIBASIM model will be used to test different water allocation for: irrigation supply, public water supply, minimum flow to Gash die, and the percentage percolates to the groundwater.

Groundwater modeling

This component is aim to understand the groundwater system of Gash, and how it interacts with different water allocation scenarios.

Ecosystems services

This part aims to focus on the added value of including ecosystems' perspectives in current or planned interventions and policies in the Gash.

Gender and equity

The outputs would address gender-specific questions and a methodology for gender inclusive investments in flood based farming through different approaches.



Beneficiaries

- Farmers
- Government officials/decision makers
- Technical experts/Investment planners
- Civil societies, community
- Organizations, WUAs, etc...
- Donors
- Research and knowledge centers

Outcomes

- Importance of socio-economics and ecosystem approach in FBFS development is endorsed (by end of 2015).
- FBFS development scenarios include effects on GAS, socio-economics, domestic water supply, and ecosystem services, identification of winner and losers and trade-off analysis (in 2016).
- Integration of integrated approach on FBFS into curriculum of universities/Hydraulic Research Center (by end of 2016).

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