







Harnessing floods to enhance livelihoods and ecosystems services in Gash Area

WLE Research Project











Harnessing floods to enhance livelihoods and ecosystems





The management of land and water is optimized

- It is sustainable, productive and equitable
- Supported by discussion and cooperation and by scientific understanding
- Look at all the flood water related (ecosystem) services
- Special attention gender perspectives



What

 Explore how to optimize the use of floods for agriculture and ecosystem services to support livelihoods in different landscapes and alsocioeconomic settings in Sudan (and Ethiopia).

Why flood based farming systems



- Flood-based Farming Systems (FBFS) use floods to grow crops, fodder & recharge shallow groundwater.
- Contribute to local food security and economic development, poor beneficiaries
- Only source of water in semi-arid areas
- Total of 30 million ha in Afirca, often serving poor farmers.
- Estimated at 550,000 ha in Blue Nile Area
- Higher risks (unpredictable floods, high sediment loads and frequent changes of riverbeds).

Problem statement

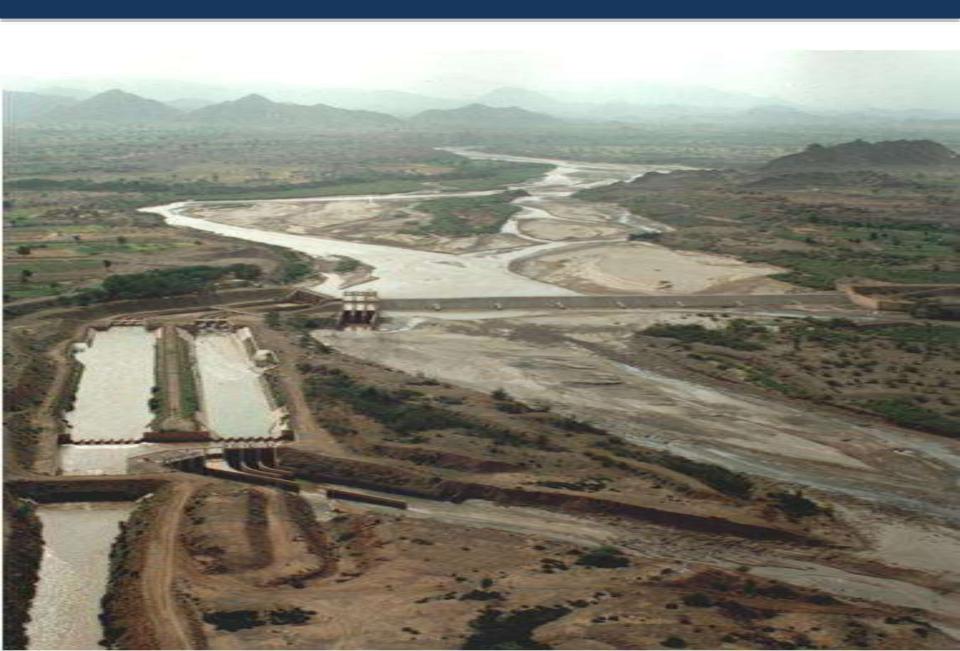


- Sudanese government and farmers investing in the improvement of spate irrigation.
- Not known how all these interventions at interact with other functions provided by floods at the local and landscape level
- Not known how these interventions affect population groups, particularly rural poor women – but also farmers/ pastoralists and rich-poor persons

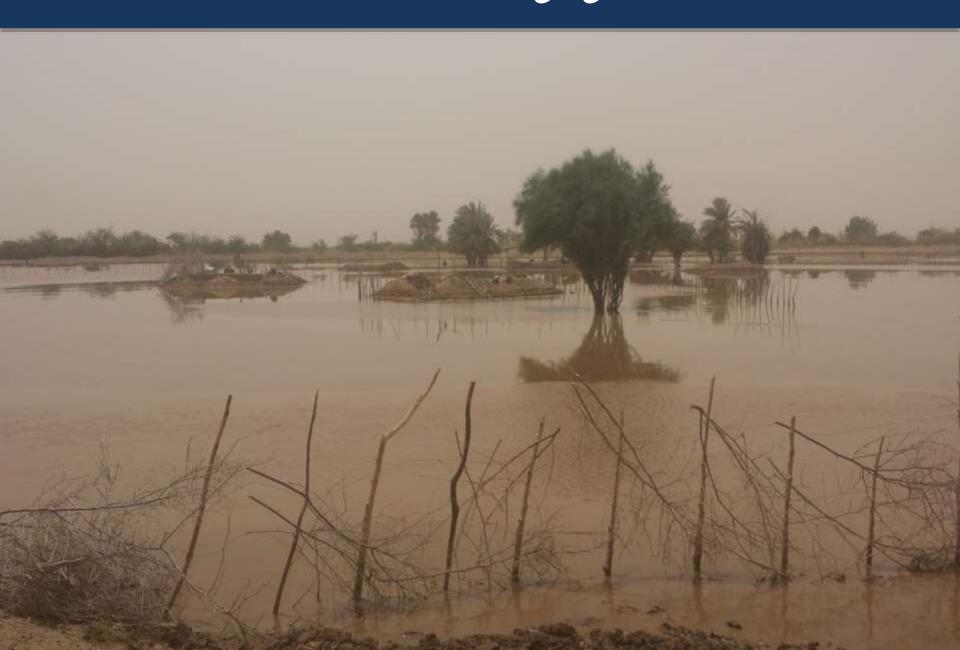
Eco-system services

- Water for direct agriculture
- Water for direct drinking water
- Water for recharge of groundwater
- Water for livestock
- Soil moisture for fertilitiy
- Positive effects of sediment
- Negative effects of sediment
- Useful 'wild' crops and plants
- Mesquite
- Effect of water on climate
- Others?

Distribution of water for agriculure and rangeland



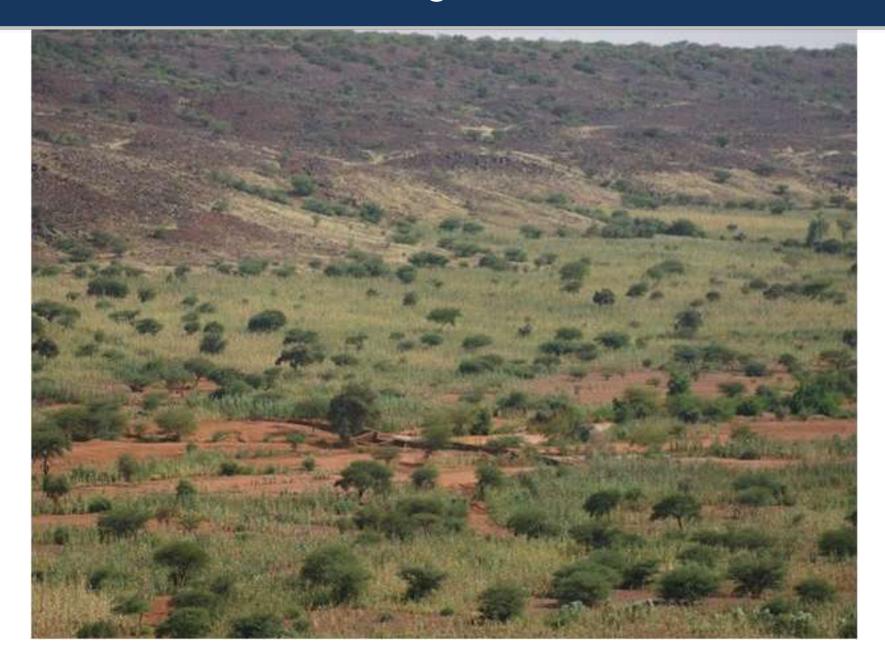
Water for recharging wells



Sediments – good and bad



Wild vegetation



Controlling degradation of land



Upstream downstream approach



- FBFS are affected by development elsewhere outside and within the systems.
 - For example, upstream watershed improvement can smoothen peak flows and reduce sediment loads.
 - Sudan: interventions in upstream system affect downstream "Gash die"

Include stakeholders



- From start to finish
- From farmers to decision makers at all relevant levels
- Male, female, youth
- Those who benefit, and those who may loose

How



- Research for development
- Improving decision making
- Inform ongoing or planned interventions with science based insights
- Basin perspective: impact of local intervention on larger landscapes
- Incorporate gender and ecosystems approach

Research



Question 1:

 What is the impact of current investment plans of upstream agricultural development on downstream flood based farming systems and livelihoods, in particular for women?

Question 2:

 What is the added value of incorporation of gender and ecosystems perspective in investment plans in flood based farming?

Question 3:

 What is the most 'efficient' use of floods (from different angles) in the Raya watershed and valley and Gash basin? And what interventions and set of intervention support this?

3 steps



- 1) assessment of the baseline situation, separate for men, women and youth;
- 2) Impact proposed interventions; and
- 3) alternative scenarios and trade-offs and synergies between benefits, costs and their distribution over stakeholder groups and the environment.

Outputs



- Importance of gender and ecosystem approach in FBFS development is endorsed
- Identification, discussion (and acceptance) of improvements
- approach into educational curriculum of UNESCO-IHE, and Sudan Gezira University/Hydraulic Research Centre

Who

Consortium partners

- Spate Irrigation Network Foundation/ MetaMeta
- The Hydraulic Research Centre of the Ministry of Water and Electricity, Sudan.
- UNESCO-IHE Institute for Water Education, the Netherlands

and all of you