Harnessing Floods for Improved Livelihoods & Ecosystem Services Project

Summary
Findings, Conclusions and Recommendations

Final Workshop
From research to impacts: towards a better use of the Gash water resources for improved livelihoods

14 to 16 December, 2016
Kassala, Sudan
Objectives

- To optimize the use of floods for agriculture and ecosystem services to support livelihoods in the Gash, Eastern Sudan.
- To identify the main challenges and opportunities for actual implementation of research findings and recommendations.
Research Questions

- What is the impact of upstream development on downstream water use?
- What is the added value of socio-economics and ecosystems in Gash?
- What is the most ‘efficient’ use of floods in Gash basin? And what interventions and set of intervention support this?
Research Components

- Groundwater management
- Water resources allocations
- Ecosystem services
- Social-issues (gender issues and water management)
Findings, Conclusions and Recommendations

Note: all calculations are based on average annual flow of 650 Mm$^3$/year
Findings

- Allocated 90,000 feddans (35,000 in GAS and 55,000 outside) - current utilized, 45,000 feddans (20,000 GAS, 25,000 outside).

- Under best scenario (mesquite control, reducing flow to Gash Die to 8 Mm³, efficiency of 80%), a maximum of 61,500 feddans could be irrigated – not the 90,000 feddans

Conclusion

- There is room to cultivate 16,000 feddans more, not the complete allocated.
Recommendation

- Focus on high revenue generation through improving water productivity ($/m³)

- Awareness creation is important: e.g., exchange visits to neighboring countries experiencing similar groundwater depletion
Findings

- Under current field water management practice (55% efficiency), a maximum of 8% expansion is possible, i.e. 90,000 feddan could be irrigated (1 feddan = 0.42 ha).

- Improving field water management (65% efficiency), could lead to 27% expansion, i.e. 104,000 feddan can be irrigated.

Conclusion

- There is possibility for expansion (8%, or 27%)

- Expansion to 120,000 feddan (commonly referred value) is not a realistic target
Water Allocation & Field Water Management Research Theme

Gash Agricultural Scheme --2

**Recommendation**

- Divide the Mesgha (field) vertically into two parts of 500 feddan each - to be tested at pilots
- Introduce field channels covering at least 2/3 of the field length on both sides - to be tested at pilots
Findings

- Next to agriculture and horticulture, there are many more benefit streams that have received little attention (forests, grazing land, tourism, etc.)
Ecosystem Services Research Theme --2

Conclusion

- Gash is the only major source of water: Investment in one of the benefit streams, without analyzing implications on the others, will not lead to optimal use of Gash river flow

Recommendation

- IWRM approach is required for developing interventions that result in equitable, efficient and sustainable use of Gash River flow
Ecosystem Services and Water Allocation Research Theme

Findings for Gash Die

- Gash Die experiences severe drought conditions - due to lack of water harvesting system and network, it has not benefited during wet seasons.
- Under average Gash River flow analyses, 8 Mm3 could be channeled to Gash Die without negatively affecting the other major benefit streams.
- This amount sufficiently meets the domestic and livestock water demands as well as regenerating drought tolerant and multipurpose trees in about 5000 feddans.

Recommendations

- Rehabilitate the water harvesting system - canal network and reservoirs.
Panel Discussion

From Research to Action: Challenges and Recommendations
Challenges, Limitations - 1

**Poor research set-up and results**

- Research does not look at issues from multiple angles and implications on multiples uses and users
- Sometimes research is too ambitious and not focused - ends up making general recommendations
- Some research recommendations do not fit the local context – priority issues; technical, financial, institutional capacities
Challenges, Limitations - 2

- Fragmented institutions with little coordination and not clearly defined responsibilities - research is falling victim to the ‘Tragedy of the Commons’ theory

- Some donors do not give attention for research - they would like to make interventions quickly - they focus on consultancy services for quick advice

- Some government institutions do not take research seriously - they do not identify it as important aspect of development programs

- There is insufficient local capacity – specially in the irrigation engineering sector
Recommendation - 1

1. Establish a body that coordinates research and development programs in Gash

- This is preferred to be politically neutral and could perhaps be named ‘The Friends of Gash’

- Its membership need to be representative: key technical experts, main beneficiaries and their traditional organizations, key local institutions and research and development partners
Recommendation - 2

2. The Ministry of Water Resources, Irrigation and Electricity (MoWRIE) need to strengthen Irrigation Sector in Gash

Possible options

1. Establish Operation and Maintenance (O&M) unit responsible for the irrigation system in the Gash Agricultural Scheme (GAS)

2. Modify and strengthen the responsibilities of GRTU (Gash River Training Unit) to also include O & M of the irrigation system in GAS
   - Establish the most suitable institutional links between the MoWRIE and the GAS
Recommendation - 3

3. **Focus on solution-oriented research embedded in the local context**

- To ensure that the research is conducted in full partnership with all relevant bodies including the grass roots & beneficiaries organizations, community leaders, potential donors, implementing government & private organizations. These institutions should collectively:
  - Agree on the priority problem and define the research questions
  - Support the researcher work
  - Debate and endorse the findings and recommendations
4. **Donors should not ignore local research**

- Consultancy service cannot and does not replace research and vice versa. Research plays a supportive role because it provides the knowledge and information required by consultants to base their valuable advice.
5. In situations where the need for new research is demonstrated, donors should allocate sufficient budget from the investment fund to undertake solution-oriented research.
6. We have to develop the capacity and change the attitude of all government authorities (policy and decision makers) to respect research and accept the findings of the research.