

Conclusion and Next Steps for Spate Irrigation Research

Simon Langan and Teklu Erkossa

Significance of the Workshop

Whilst spate irrigation is not a new concept in Ethiopia, over the recent decades there has been a resurgence of interest and use of such natural flood irrigation in the country. This renewed interest is being driven in part by the need to grow more food, in the context of increasing population and increasingly marginal land with the changes in availability of suitable soil moisture and rainfall.

This workshop was a novel experience for many in that it brought together a multitude of users, researchers and administrators to share experiences on designing, monitoring and operating spate irrigation practices in Ethiopia. The workshop was attended by 38 people drawn from 23 organizations serving government, universities, research institutions, local and international NGOs, and irrigation design enterprises, among others. This represents a significant body of experience, which generated a shared common understanding as well as innovative insights into both opportunities and constraints for spate irrigation. The experiences shared, in terms of information and knowledge, are represented in the preceding papers. Below, we provide an overview of the salient findings that emerged from the discussions. We also highlight key suggestions made by participants for next steps towards ensuring that spate irrigation continues to be strengthened by improved policies and practices that are informed by ‘lessons learnt’ from field experience and research.

Overview of the Main Findings and Potential Next Steps

1. In discussions relating to the challenge to realize the full potential of flood-based irrigation farming, participants made the following comments and observations:
 - High rainfall in upland areas provides adequate floodwaters for use in the adjacent lowland areas. There is a range of good and bad experiences based on the practice of spate as a traditional type of farming in the past. More modern spate irrigation can build on past experience as a contribution to reducing food insecurity in arid lowland areas. Over 60% of Ethiopia’s land mass is in the lowland and has some potential for spate irrigation.
2. Participants discussed what needs to be done to enable Ethiopian spate irrigation farming to meet its potential. They highlighted the following points:

- There is a need to develop modern infrastructure that builds on the successes of past design and practice and minimize what did not work as well. Central to this, spate irrigation should be community-led to maximize ownership. This can be achieved by a participatory approach from the outset [early in the design phase]. A participatory approach ensures that local, indigenous knowledge relating to how rivers and floods are generated is used together with scientific and engineering principles to design, build and use flood-based structures for irrigation. There is also a need to adopt a more systematic approach that considers both upstream (water source) and downstream (water use relations), particularly in relation to such issues as erosion-sedimentation. To avoid conflicts, there is a need to further consider governance and institutional arrangements that maximize equity, reduce potential conflicts and encourage efficient, participatory development. In part, this relates to building capacity and raising awareness of spate irrigation farmers, development implementers and relevant institutions.
3. In relation to ensuring spate irrigation progresses and lessons from past practice on the most important aspects, participants responded:
- There is a need to systematically document, monitor and evaluate both successes and failures from past and ongoing practices. A key suggestion from the meeting was to undertake a knowledge audit of what we know about spate irrigation, and as importantly, identify our knowledge gaps. Particularly, participants emphasized the need to draw on knowledge from both local government and community development experience and indigenous farmer practice to inform the design and implementation for new schemes. This will require designers and planners to spend more time in the field collecting relevant information. The group also suggested that there could be demonstrations or examples of good spate irrigation schemes, which others could learn from visits. On a related issue, opportunities exist for cross-country learning where spate irrigation is also practiced, such as, Pakistan, Afghanistan and Yemen. Exchange visits are particularly important in relation to addressing gender equity issues. Finally, the group suggested a need to replicate the experience of this workshop by creating a forum for further experience sharing and learning lessons, either from successes or failures, nationally or internationally. Effectively, participants recognized the need for regular networking on spate irrigation, which could build on the existing Spate Irrigation Network.
4. Participants shared their views on additional research needed to implement flood-based agriculture more effectively. They suggested the following:
- Evaluation of current knowledge and best practices.
 - Improving knowledge of hydrology and sediment management in order to improve water and sediment management in spate irrigated fields. This in turn should be linked to agronomy in terms of rapid growth and maturity considering adequate soil moisture, and the potential for drought-resistant species.

- Primary studies on land suitability, spate agronomy (spate appropriate crops) and socioeconomic and institutional issues (equity, conflict, cooperation), including watershed management.
 - Studies on the institutions, governance and management approaches in spate irrigation schemes.
 - Relationship between spate irrigation farming and improvements to nutrition and livelihoods.
5. Finally the participants discussed the priorities for the next steps. There was an extensive discussion on the gaps and opportunities provided by enhancing spate irrigation in the future, and the discussions concentrated on five key areas where there is urgent need to:
- Audit and monitor all of the major spate irrigation schemes and their principal attributes using a standardized format to provide a baseline of what is working (or not), where and why.
 - Continue to evaluate and monitor spate irrigation through an ongoing program of work related to the performance of this style of farming so that further development and evolution are based on lessons and evidence from existing practice.
 - Increase the knowledge base on spate irrigation in Ethiopia, notably through a first step of undertaking a capacity audit specifically in relation to spate irrigation across a spectrum of people from farmers and development practitioners and extension agents, to policymakers, technical professionals/project designers, and the national and international research community. Enhancing the existing Spate Irrigation Network may be one vehicle to promote this.
 - Mobilize resources to undertake these activities, in part through efforts to raise awareness among potential funding sources, including donors, on the contribution and additional potential of spate irrigation.