

# Transforming smallholder irrigation into profitable and self-sustaining systems in southern Africa (TISA) Project

## Background

Most government-run irrigation schemes in Africa have failed or are significantly under-performing, for a complex array of reasons. However, the research project (ACIAR FSC/2013/006), *Increasing irrigation water productivity in Mozambique, Tanzania and Zimbabwe through on-farm monitoring, adaptive management and agricultural innovation platforms (AIPs)*, found that AIPs combined with soil moisture and nutrient measuring can substantially increase crop yields and incomes of farmers, and make irrigation schemes more self-sustaining. These improved yields, profits and problem-solving were achieved before infrastructure investments were made in Tanzania and Zimbabwe, thereby strengthening the likely benefit and sustainability of future infrastructure investments. The project enabled smallholder farmers and related stakeholders to achieve success in a traditionally difficult sector, which is also currently a top priority for African governments and international donors.

The proposed follow-on research project will test how best to spread those findings beyond individual irrigation schemes to many other schemes and countries. The research will start in June 2017 and conclude in 2021.



## Aim and objectives

The project aims to improve farmer livelihoods, equity and community management in smallholder irrigation schemes in southern Africa. Consequently the objectives are to:

1. determine how the package of AIPs and simple tools<sup>1</sup> for water management can best be scaled up and out,
2. identify what institutions lead to inequity among farmers in water supply and economic benefit from irrigation, schemes, and how this inequity can be reduced,
3. develop irrigation policy options for governments and multilateral agencies, so that smallholder schemes can be more profitable, equitable and self-sustaining.

## Activities and outputs

The project will work with at least 38 irrigation schemes, supporting over 15,000 farmers. Rather than intervening directly at each irrigation scheme, we will work with farmers, government agencies and businesses to:

- a. test how to scale out AIPs from existing irrigation schemes and scale up AIPs at district<sup>2</sup> and national scales using existing structures,
- b. expand the supply and use of simple tools for water management, to increase farmer, community and government learning,
- c. assess how inequity affects women, youth and other disadvantaged groups and how this can be reduced,
- d. record and communicate emerging national and regional policy lessons with irrigation and other stakeholders, for productive and sustainable smallholder irrigation.

The five key outputs will be:

- a. established capacity to use AIPs to innovate in at least five districts and 38 irrigation schemes,

<sup>1</sup> 'Simple tools' is used to refer to both the Full Stop soil wetting front detector and solute collection device, and the Chameleon soil moisture detection tool. See <https://via.farm/>

<sup>2</sup> 'District' is used to refer to sub-national places where the project will work – generally, formal districts or provinces of the countries concerned. 'Region' is used here in a multi-national context within Africa.

and publish guidelines on how to scale up and out the benefits from AIPs to other places with minimum investment

- b. published ways of using simple soil and water monitoring tools to benefit irrigators on a large scale, by identifying enhanced practices from irrigation patterns
- c. documented processes to better represent women, the young and tail-end farmers in decision making, and aid their access to land, water and new technology
- d. end users of key national government agencies and multilateral irrigation funders know how to apply successful project techniques
- e. a 'how to' guide to better irrigation practices, including a diagnostic tool for prioritising interventions in suites of irrigation schemes.

## Project outcomes

We expect that the research will result in outcomes at different scales:

- Irrigation communities becoming more profitable and self-sustaining as a result of individual and social learning, and institutional and technological change. This will result from: farmers mindsets changing from subsistence to market-oriented practices and choosing more profitable crops with more reliable markets; better access to cheaper and higher quality farming inputs; more efficient use of water and fertilisers resulting in greater crop yields; reduced social conflicts; savings in irrigation labour directed to other livelihood activities; more effective farmer organisations; farmers being willing to pay sufficient water fees and provide labour to maintain infrastructure; and

greater demand on governments to support the irrigation sector's needs. Some expansion of irrigated cropping is expected as water is used more efficiently.

- Extension and support staff facilitating AIPs and supporting the development of district-scale agricultural service providers and markets.
- Governments applying project findings to provide answers on how best to meet their key irrigation policy targets.
- Partnerships with the private sector leading to more vibrant local economies, as all value chain stakeholders benefit from increases in agro-economic activities.

## Key partnerships

The project team for the extended project will consist of a partnership of seven organisations: the Australian National University, the Commonwealth Scientific and Industrial Research Organisation and the University of South Australia, the National Institute for Irrigation in Mozambique, Ardhi University in Tanzania, the International Crop Research Institute for the Semi-Arid Tropics in Zimbabwe, and the Food, Agriculture, Natural Resources and Policy Analysis Network.

African researchers will be partnered closely with government irrigation agencies at the national and district scales to support and mentor changes in management.

The project will engage with businesses that are important input suppliers or markets for crops, to promote mutually beneficial market-oriented partnerships with farmers.



## More information

Dr Jamie Pittock,  
Associate Professor  
Fenner School of Environment and Society  
48 Linnaeus Way  
The Australian National University  
Acton ACT 2601, Australia  
E: [Jamie.pittock@anu.edu.au](mailto:Jamie.pittock@anu.edu.au)  
M: +61 407 265 131  
Project page: <http://tinyurl.com/ju33qcx>



Australian Government  
Australian Centre for  
International Agricultural Research



Australian  
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