

Climate change adaptation benefits from rejuvenating irrigation schemes in Tanzania, Zimbabwe and Mozambique

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The Challenge

- Climate change increases variability and reduces availability of water
- Agriculture account for up to 80% of water withdrawal in many water scarce regions
- Demand from non -agricultural users will increase
- Growing pressure on agriculture to reallocate water to other uses while the demand for food increases to meet food security needs.
- Irrigators **ADAPTIVE CAPACITY** to climate change is therefore critical - produce more food with less water

Transforming Irrigation in Southern Africa (TISA)

Phase	1: 2013-17	2: 2017-21
Funding \$US	2.4 million	3.0 million
Irrigation schemes	6	38+
Farmers	1,641	15,500

- Two main interventions:
 1. Simple to use soil monitoring tools
 2. Agricultural innovation platforms (AIPs)

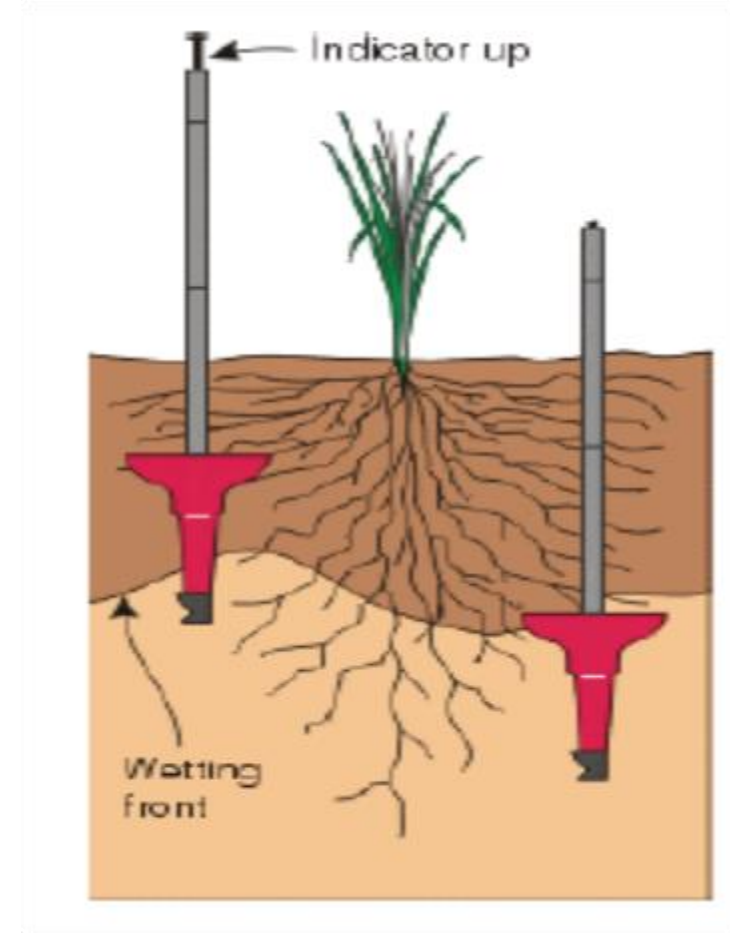




- Combine all actors in the value chain to explore opportunities for the farmers in the local market context
- Goes through status quo and visioning exercise
- How do we achieve vision?
- What are the barriers?
- How do we overcome them?
- Who can implement the actions?

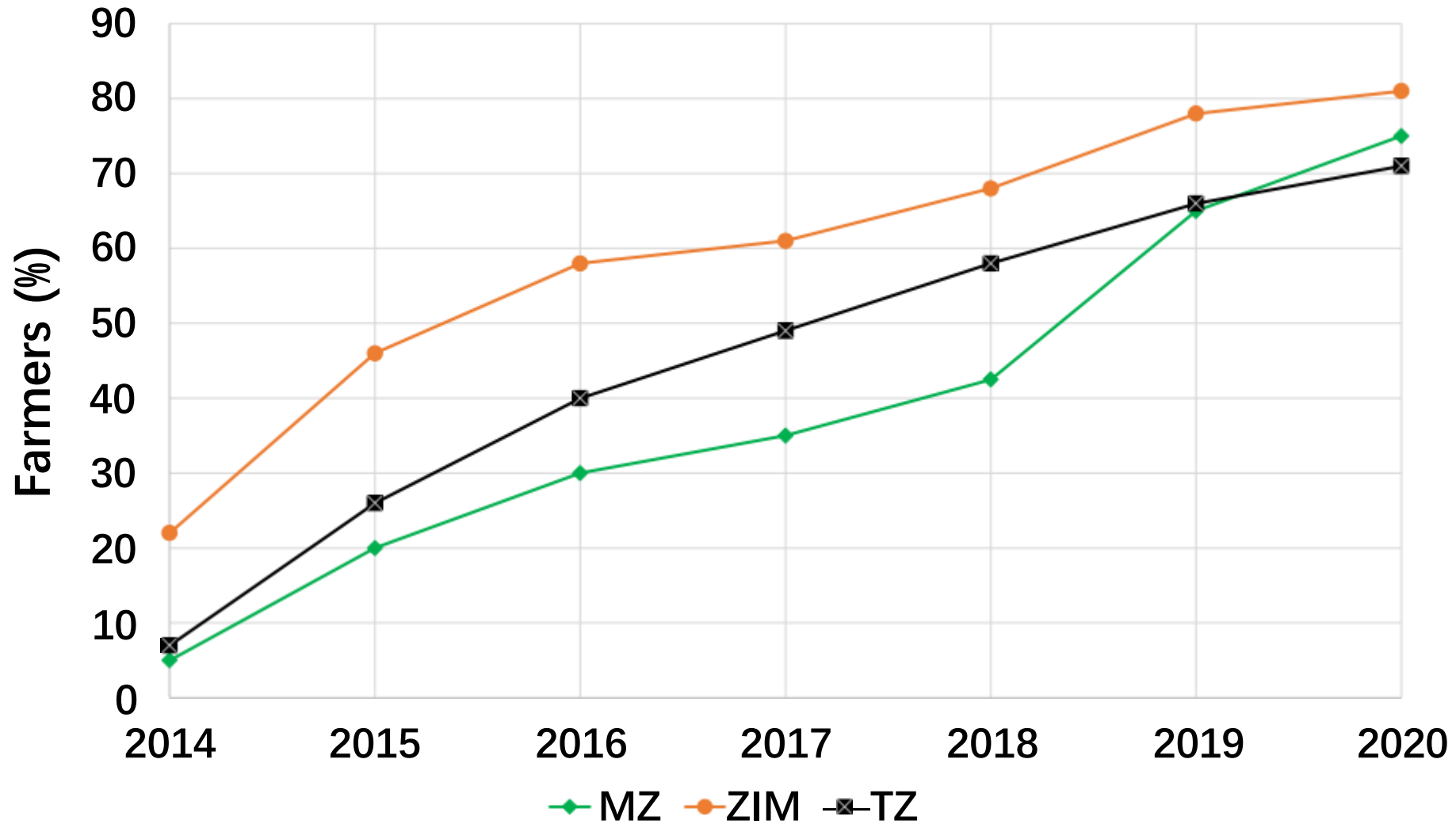
Simple to use tools – learning & crop yield

The Chameleon



The FullStop

Changes in irrigation practices (2014 - 2020)

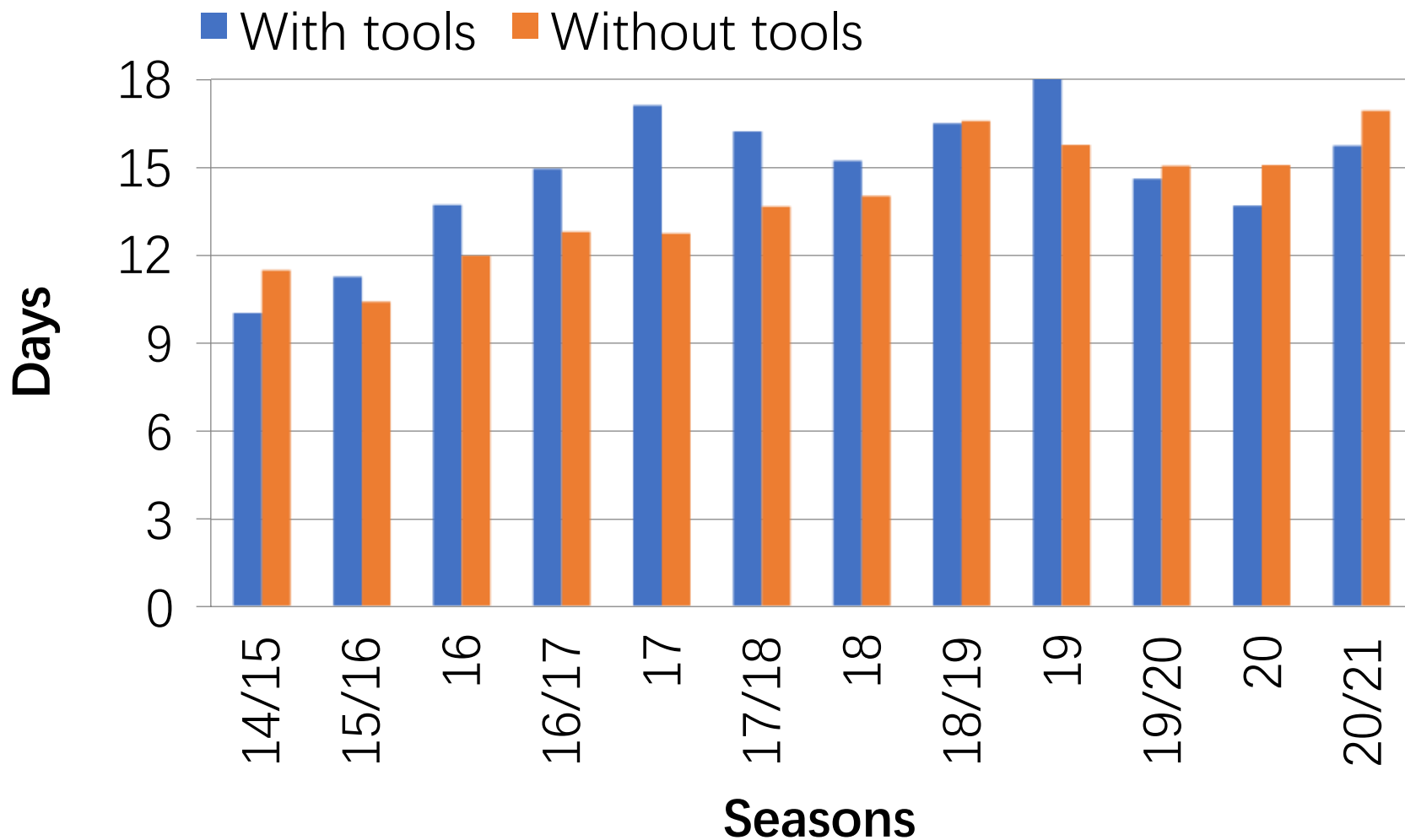


- **MOZ - 75%**
- **TZ - 71%**
- **ZIM - 81%**

Uptake of learning 2013 to 2020 - farmer to farmer learning

Change in irrigation frequency (2014 - 2020)

Change in irrigation frequency in Mozambique



1. Tanzania

(change from 2.7 to 5 days interval)

2. Zimbabwe

(change from 7 to 14 days interval)

3. Evidence of farmer-to-farmer learning⁸

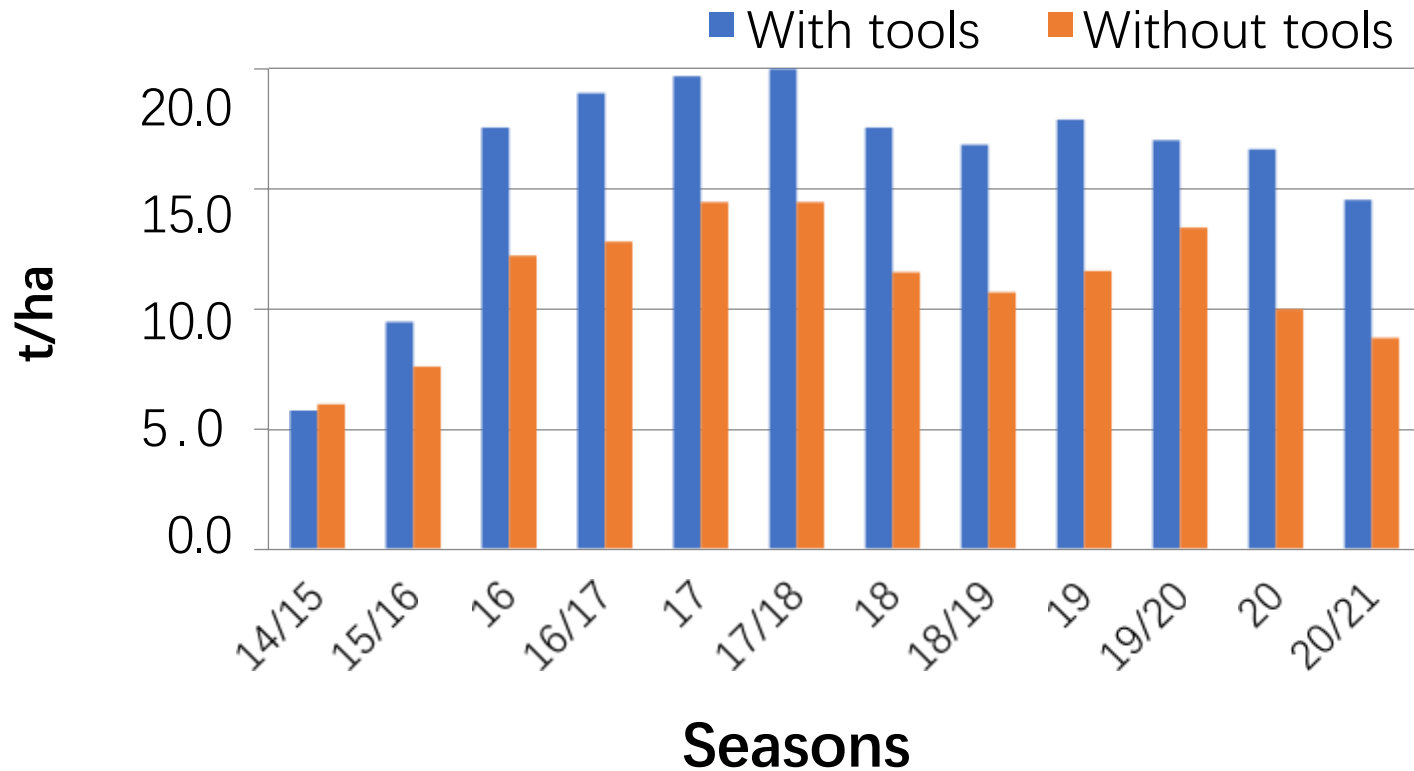
Benefits from the use of soil monitoring tools (2013 - 2020; MZ, TZ, and ZM)

1. Reduction in number of irrigation events
2. Reduction in irrigation duration
3. Reduction in water and energy use
4. Increased crop yields and gross margin
5. Saving labor
6. Engagement in other off-farm activities
– diversified income stream
7. More efficient fertilizer use



Changes in yields of green maize, 2014 - 2020

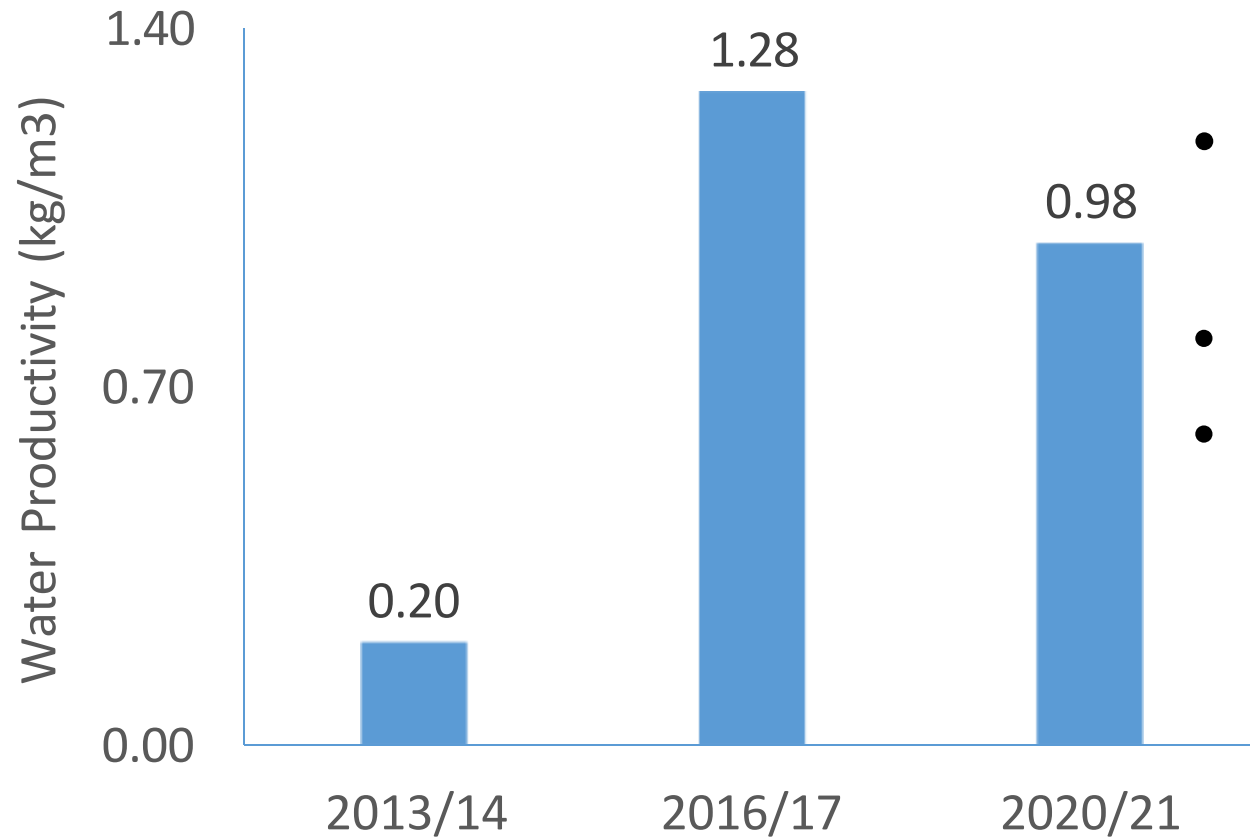
Green maize yield in Mozambique



- 1. Mozambique** (changed by > 200%, green maize)
- 2. Tanzania** (changed by >50%, green maize)
- 3. Zimbabwe** (change by > 300%, grain yield)

Changes are a combination of shifting in practices (new business plans; better seeds; gross margin workshops; tools; AIP). Similar trends to Gross Margins

Changes in water productivity (Zimbabwe)

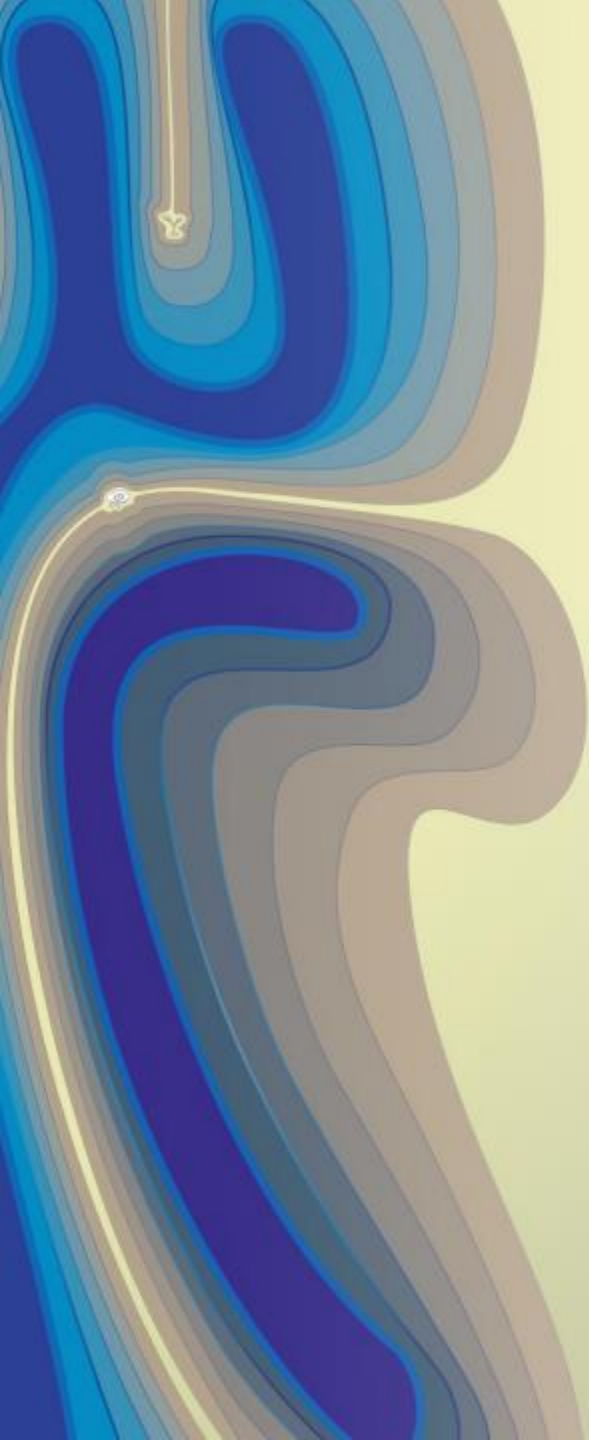


- Maize yield for water used (irrigation plus rainfall).
- Better use of rainwater
- From irrigation to supplementary irrigation

Impact of COVID on TISA vs non-TISA schemes (Zimbabwe)



% of households in TISA vs non-TISA schemes that experienced decline in household income and food security due to the COVID pandemic



TISA and Adaptive Capacity

1. Farm and off-farm income has increased improving farmers economic resources
2. Reduced conflicts and farmer to farmer learning have increased social capital
3. The AIP facilitated a wide array of training and learning opportunities leading to changes in farming activities
4. The monitoring tools assisted farmers to address agricultural challenges
5. The AIP facilitate co-investment in critical agricultural infrastructure

Thank you and further information



The result of TISA has been widely published, in particular we refer to three open access special issues:

- Bjornlund, H.; Pittock, J. and van Rooyen, A. Eds. (2020): Transforming Small -Scale Irrigation in Southern Africa. International Journal of Water Resources Development 36(S1)
- Bjornlund, H. and Pittock, J. Eds. (2017) The Productivity and Profitability of small -scale communal irrigation system in south -eastern Africa. International Journal of Water Resources Development 33(5)
- Bjornlund, H., Pittock, J. and van Rooyen, A. Eds. (forthcoming): Transforming small -scale irrigation systems from dysfunctional to functional climate smart agricultural systems. International Journal of Water Resources Development