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Transforming smallholder irrigation systems from dysfunctional to functional climate smart agricultural systems and integration into circular food systems

Large-scale industrial agricultural production systems are inappropriate for sub-Saharan African's conditions and food insecurity and poverty persist. A paradigm shift is needed to place more focus on smallholder production systems. This presentation presents the findings from 12 years of agricultural research-for-development in sub-Saharan Africa as part of the Transforming smallholder Irrigation systems in sub-Saharan Africa (TISA, 2013-23) and Circular Food Systems in Africa (CFS, 2023-26). TISA implemented agricultural innovation platforms and soil moisture monitoring tools in smallholder irrigation schemes in Mozambique, Tanzania and Zimbabwe to improve irrigation efficiency and improve farmer profitability. Over the ten-year period TISA transformed dysfunctional schemes to functional schemes with profitable farmers resilient to climate change induced extreme weather events and other disruptions to their production system such as COVID-19. This presentation argues that functional irrigation systems can become the economic generator for surrounding rural communities by integrating irrigation, rainfed and livestock production, and implementing circular food systems and agroecological concepts. The aim is to decouple resource use from increasing the benefits from resource use. Integrating farm produce into local value chains will increase farmers income and create new job and business opportunities and improve livelihoods and food security. We report on early experiences implementing circular food systems and suggest future research opportunities.

Biography

Henning Bjornlund, PhD is an honorary Professor at the Fenner School, Australian National University, Canberra, Australia. Over the last 12 years he has worked on the Transforming Irrigation in Southern Africa and the Circular Food System in Africa projects. Until 2023 he was a professor of water policy and management at University of South Australia. From 2005 to 2015 he, jointly with his UniSA position, also held a Canada Research Chair in Water Policy and Management at University of Lethbridge, Alberta, Canada. He has published more than 200 peer reviewed publications.