



### Opportunities for small scale irrigators

Increasing food production through irrigation in the dry season improves livelihoods. Entrepreneurs and farmers in Africa are already using groundwater, river or stream pumping, lowland/inland valley rice water capture systems and private small reservoirs and ponds in emerging irrigation systems.

The **Innovation Lab for Small Scale Irrigation (ILSSI)** is working in Tanzania, Ghana and Ethiopia where small scale irrigation can contribute to national development goals.

The aim of ILSSI is to identify ways of creating opportunities for farmers and other actors across scales. Researchers, with farmers and extension workers, are piloting systems to improve water lifting, conveyance and field distribution. They are also examining mechanisms to improve access to small scale irrigation technologies for both women and men. The project considers scaling technologies and practices with a focus on both the market and environmental sustainability.



*A youth group of irrigators discuss their irrigation techniques in Rudewa-Mbuyuni, Tanzania  
Photo: Petra Schmitter, IWMI*

### Challenges

Transitioning from subsistence, rainfed systems to commercial irrigation requires enhancing the efficiency of water management and expanding and increasing the use of best-bet technologies. Small scale irrigation technologies must be profitable for farmers and investors and must fit the context of the farm and its biophysical environment as well as the market. When expanding and increasing the use of irrigation, whether using small, medium or large scale systems, consideration of the practical and sustainable limits of the market and the environment is crucial.

### How ILSSI is contributing to solutions

The project team are working on a number of interrelated components to meet these challenges:

- Piloting motorized pumps testing for surface water extraction, and appropriate water application (overhead, drip, furrow), irrigation scheduling tools for small scale irrigation and testing of pocket gardens to improve nutrition at household level
- Generating biophysical and socio-economic data to assess opportunities and constraints to scaling these technologies and approaches.
- Identifying potential business models to access the profitability and financial considerations of small-scale irrigation for men, women and youth.
- Exploring options for irrigating fodder that supports enhanced livestock production.
- Ensuring the environmental and economic sustainability of irrigation interventions from farm to watershed scale through an integrated, process-oriented modeling suite including SWAT, APEX and FARMSIM.
- Identifying potential pathways leading from irrigation to improved nutrition.

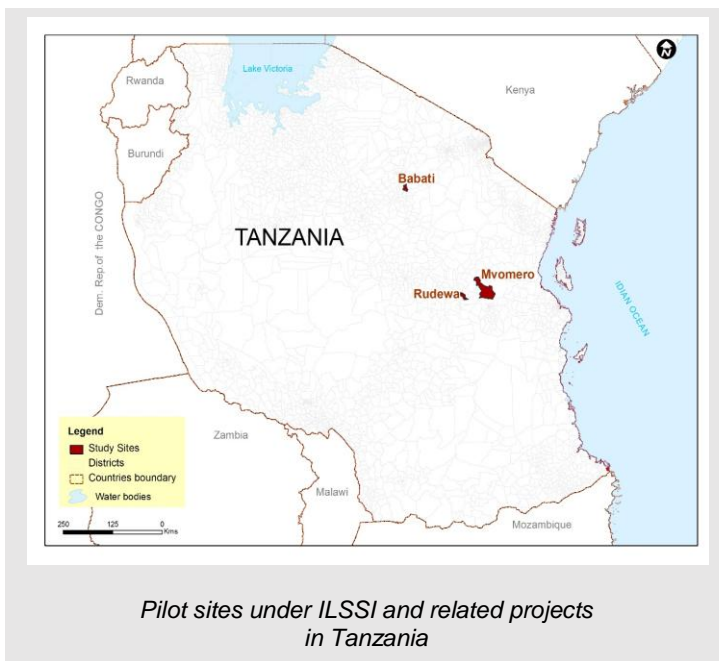
### Field intervention sites

In Tanzania, ILSSI is piloting interventions with around 40 women and men farmers in Rudewa, Mkindo, Morogoro and Babati (fodder only).

## Pathway to impact: upscaling from the field to the watershed



## From field level interventions to modeling scenarios and supporting decisions



At all project sites, the research team are working with national universities and research partners, extension, subject matters specialists, local irrigation and finance cooperatives, and women and men farmers to pilot technologies and practices that hold potential for scaling up small scale irrigation. Primary data is being collected through installation of measurement instruments, sampling and field interventions in the relevant watersheds, as well as through socio-economic surveys and farmer field books. In these, farmers are being encouraged to record data on daily and seasonal practices. By sampling and testing water quality in the watersheds the project team are able to monitor and analyse different water sources when considering multiple uses of them. This primary data is complemented with secondary data from national and international resources. ILSSI uses the data in a suite of models - SWAT, FARMSIM and APEX - that form an Integrated Decision Support System (IDSS).

## Partnerships, capacity and engagement: working toward impact

The ILSSI team is led by *Texas A&M University* with the *International Water Management Institute (IWMI)* and the *International Livestock Research Institute (ILRI)* leading field interventions and the *International Food Policy Research Institute (IFPRI)* conducting household surveys. Continuous stakeholder engagement throughout is a core approach of the ILSSI project. In Tanzania, the interventions are implemented and data collected by Sokoine University of Agriculture.

ILSSI helps to develop the research and publishing skills of students and young professionals in partner and stakeholder organizations. The project is contributing to strengthening the capacity of farmers, extension workers and private sector suppliers and service providers. For example, the research team has led capacity development training on irrigation scheduling, agronomic practices for irrigated crop production, and managing micro-finance loans for investment in small scale irrigation. ILSSI also holds annual training sessions for researchers and practitioners on using the IDSS suite of models to ensure decision support continues after completion of the project.

## Further information

This leaflet has been produced by the International Water Management Institute (IWMI) [www.iwmi.org](http://www.iwmi.org). For more information on this project contact: **Dr. Jennie Barron, project leader in Tanzania**, ([j.barron@cgiar.org](mailto:j.barron@cgiar.org)) and **Dr. Nicole Lefore, project manager** ([n.lefore@cgiar.org](mailto:n.lefore@cgiar.org)).