



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



Irrigation for people and livestock, Ethiopia
Photo: ILRI

ETHIOPIA

Feed the Future Innovation Laboratory for Small Scale Irrigation (ILSSI)

Vision

Increase profitable, sustainable and gender-sensitive irrigation to support inclusive agricultural growth, resilient food systems, and nutrition and health outcomes, particularly for vulnerable populations.

Challenge and focus

ILSSI's challenge is to identify how to expand the use of small scale irrigation (SSI) – such as improved adoption rates and inclusivity of adopters – in an economically and environmentally sustainable way. ILSSI research through 2023 will focus on generating evidence for effective scaling and increasing inclusive access, for women, youth and resource poor farmers, to sustainable small scale irrigation and its benefits. Evidence will also be generated on irrigation and nutrition, along with improving social and ecological resilience. Attention will continue on the irrigated fodder value chain in Ethiopia.

Planned activities

Future activities integrate scaling partners with an emphasis on private sector actors. Through a competitive process, ILSSI intends to identify private sector partners that are first movers in the irrigation technology supply chain in Ethiopia and elsewhere in Africa. We will also partner with small- and medium-enterprises in the irrigated fodder value chain to refine investment entry points and activities. Our innovative work on irrigation and nutrition continues, complemented by new inquiry on the risks of intensification and climatic variability, as well as measures to enhance resilience.

Indicative plans (2019-2020)

- » Consult with USAID Mission, Feed the Future projects and national stakeholders
- » Scaling activity - survey irrigating producers on demand and incentives for investing in SSI technology
- » Technology supply activities toward increased access:
 - » Initiate dialogue process with private sector actors (interviews, events)
 - » 'Netmap' with private sector actors (e.g. technology manufacturers, importers, distributors; financial services) to identify general and spatial linkages, roles and gaps in the technology supply chain
 - » Developing and testing business models with the private sector
 - » Contribute to analysis of tariff removal on irrigation equipment and the impact at farm level
 - » Continue analysis of credit and finance in relation to expanding farmer-led irrigation
- » Nutrition activities – continued analysis of water, nutrition, resilience to climatic shocks and improved human outcomes; outreach with stakeholders on irrigation – nutrition linkages
- » Inclusivity, gender and resilience activities:
 - » Adapt [SSI gender guidance and toolkit](#) for use by private sector and other projects
 - » Implement [experiential approaches to improved local resource management](#) for resilience and inclusivity
 - » Build on earlier [USAID investment in community resilience and natural resource management in Ethiopia](#)
- » Socio-ecological resilience activities:
 - » Spatial assessment refined on the suitability for different SSI technologies, including Water Accounting
 - » Systems level assessment of SSI on scenarios on [climate change and resilience](#)
 - » Initiating analysis of relationship between SSI and water quality, particularly given multiple uses
- » Irrigated fodder value chain:
 - » Suitability mapping for irrigated fodder applying refined analytical methods
 - » Developing and testing business models with the private sector



Building on existing research toward scaling solutions

The proposed research will build directly on ILSSI results from the past five years with alignment to the [Global Food Security Strategy Ethiopia Country Plan](#).



Key messages from research (2013-2018)

Ethiopia has high potential for expanding SSI

- Around 1 million hectares are [economically and biophysically suitable for SSI in Ethiopia](#)
- Highest potential areas include Lake Tana, Great Rift Valley, followed by Amhara, Oromia and SNNPR
- Around 5,874,000 smallholder farmers could directly benefit
- [Motorized pumps are profitable](#) with high value vegetables
- [Solar irrigation business case analysis points](#) to profitability

Benefits of SSI include improved incomes, nutrition and livelihoods

- Net profit potential directly to farmers of USD 2.6 billion each year
- Most irrigation [technologies are profitable](#) for farmers with high value crops
- Irrigation as a [nutrition-sensitive agricultural intervention](#)
 - › Irrigation has a strong positive effect on both the household's economic access to food and on nutritional outcomes for women and children
 - › Irrigators consume more vegetables, eggs, and sweets. Vegetables and eggs provide key nutrients for child growth and overall health
- [Irrigated fodder](#) holds potential for smallholders, market analysis suggests profitability, and overall it contributes to animal and human nutrition



Addressing constraints to outcomes and commercialization

- There is probability of water scarcity through rapid and unplanned expansion of SSI. The Rift Valley area has the highest risk of water scarcity
- Despite ample water resource potential to support irrigation in many areas, groundwater recharge may not meet the irrigation water requirement for dry season cultivation
- Lack of information on irrigation practices creates risks to water and soil, and reduces potential income for farmers
- Irrigation expansion is restricted by labor-intensive, traditional methods:
 - › Only 14% of households surveyed own a pump, though 25% report using a pump for irrigation that is owned jointly or rented
 - › Labor intensive practices limit irrigators to small plots of land and crops that consume less water
- Majority of farmers involved in irrigated production [lack access to any form of credit](#) (formal and informal). Existing financial products are not suitable for irrigated production investment
- Technology supply market is underdeveloped and lacks support to develop in a way that effectively meets demand:
 - › Few importers, manufacturers or distributors
 - › Most equipment is not available outside of major markets
 - › Services and products not bundled with credit options
- [Women are notably disadvantaged](#) in terms of access to, and receiving benefits from, SSI. [Access will need to be more inclusive](#) to ensure the full potential number possible of farmers benefit

Contacts: Dr. Nicole Lefore, Director, (Nicole.Lefore@ag.tamu.edu) or Matt Stellbauer, Program Manager, (Matt.Stellbauer@ag.tamu.edu)