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

Cultivating eggplant in the dry season with drip irrigation, Bougouni, Mali
Photo: Worldveg

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

Vision

Increase resilience, improve health, and strengthen food and nutrition security for smallholder farmers by establishing access to and best practices for management of water.

Challenge and focus

The population of Mali is highly vulnerable to water insecurity, food insecurity, and undernutrition, all of which can be linked in some way to water stress. The reasons are numerous: water is becoming increasingly scarce, partly as a result of low flows in the Niger River, which otherwise provides water to the country. Climate change and weather variability also pose significant challenges to farmers, while recent security crises have hampered production, markets, and investments. Small scale irrigation can help provide smallholders with water for irrigation and livestock, but also for other uses such as consumption, washing and bathing, fishing, and recreation.

ILSSI is identifying how access to water and improved agricultural water management can help lead to prosperity, improved water and food security, nutrition, and resilience. Our research results can be used to invest in interventions that support farmer-led irrigation and complement large-scale schemes. In addition, findings on competing water demands of households, farmers, and pastoralists can support decision-makers to better allocate water among different users at local, watershed, and basin scales. ILSSI is also examining value chains that can be strengthened through irrigation, such as seeds and horticulture. Field research is being carried out in the Segou, Sikasso, and Mopti regions.

Current activities

- Conducting focus group discussions and interviews to understand the role of irrigation to counter climate variability and change, and to identify high-potential small scale irrigation interventions. Results will be used to advance household food security goals, through opportunities in solar-powered irrigation, irrigated seed production, and commercial gardens.
- Investigating competing water demands for domestic and productive uses at multiple scales for the Black Volta and the Upper Niger basins using 🔗-Water Accounting+, an internationally recognized and standardized framework for describing availability of water resources.
- Identifying the effects of water access on irrigating and non-irrigating households' water insecurity, building on USAID interventions in vegetable gardens and related technology hubs.
- Integrating water insecurity assessments for agriculture, production, and domestic uses, through tools such as the 🔗-Household Water Insecurity Experiences Scale.
- Identifying potential opportunities and barriers local market actors face in expanding small scale irrigation, particularly through a market study and mapping of irrigated value chains, such as seeds.

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Farmer cooperative irrigated rice fields, near Timbuktu
Photo credit: MINUSMA/Marco Dormino

PROMISING STARTING POINTS

Solar-powered irrigation

ILSSI has already identified 🔗-areas in Mali suitable for solar-powered irrigation: the total suitable area varies between 0.69 and 4.44 million hectares, representing between 11 and up to 69 percent of Mali's agricultural lands. Solar-powered pumps offer households access to water for multiple uses. ILSSI research is showing how solar-powered irrigation can help 🔗-end malnutrition and increase climate resilience.

Nutrition and resilience

Past ILSSI research suggests 🔗-multiple pathways from water and small scale irrigation to nutrition, including through increasing farmers' agricultural production, through increasing their income, through empowering women, and through providing water for domestic and sanitation purposes. In addition, small scale irrigation is emerging as part of the solution to climate vulnerability.

Entrepreneurship and new value chains

ILSSI is investigating opportunities for increasing men and women's income through new entrepreneurship opportunities. These include irrigated seed production and commercial dry-season gardens, building on solar-powered irrigation. Partnerships and consultations with private sector actors are central to ILSSI's approach to achieving impact.

Irrigated homestead gardens

ILSSI is expanding on 🔗-previous research investigating the positive effects of homestead gardens on households' 🔗-nutritional health and incomes, as well as on women's empowerment. ILSSI's study will contribute to approaches to improving water management in vegetable production in support of even greater benefits.

Irrigated rice farmer in Koroyomme, Timbuktu
Photo credit: MINUSMA/Marco Dormino

🔗 - Links to these publications, and other resources, can be found here: https://ilssi.tamu.edu/countries/mali/

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