IWMI
International Water Management Institute

Vegetable Irrigation for Climate Resilience Toolkit

Technical Brief

A digital advisory platform to strengthen livelihoods and food security in fragile and conflict-affected settings

Vegetable Irrigation for Climate Resilience Toolkit project

- Duration: October 2022 to November 2024
- Led by the International Water Management Institute (IWMI)
- Under the Water, Climate Change and Resilience Strategic Program

VICR is being scaled under the Digital Innovations for Water Secure Africa (DIWASA) project, funded by the Leona M. and Harry B. Helmsley Charitable Trust. In its next phase, the toolkit will be deployed in Ghana, Burkina Faso and Zambia.

Vegetable Irrigation in Fragile Settings

Access to nutritious, affordable food can be challenging in emergency contexts. Traditional crisis responses often focus on staple crops to meet immediate needs, overlooking the nutrition and income opportunities offered by vegetable production.

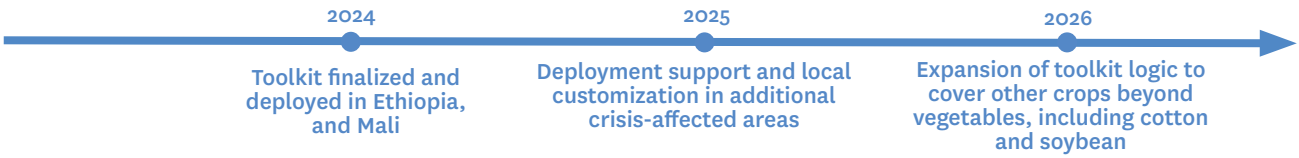
This platform seeks to fill that gap by providing practitioners with a variety of resources and tools to develop resilient irrigated vegetable projects in crisis settings. Vegetable irrigation is vital for nutrition and resilience, particularly as climate change and crises disrupt food systems. Designing and implementing efficient irrigation technologies and climate-smart practices reduces crop stress, boosts productivity, and strengthens resilience in the face of climate change. Investing in local irrigation solutions and supporting vegetable production helps vulnerable populations cope with humanitarian crises, sustaining their food, livelihood and nutrition security.

The platform builds on existing humanitarian standards, such as Standards for Supporting Agricultural Livelihoods in Emergencies (SEADS), by specifically addressing vegetable irrigation, a critical yet often overlooked area in emergency food systems.

An Integrated Platform for Irrigation Planning and Program Support

The VICR portal is a web-based decision-support resource designed to help humanitarian actors plan, design, and implement irrigated vegetable production (IVP) in fragile and crisis-affected settings. It delivers a toolkit made up of three integrated modules that support decision-making across the full intervention cycle.

CGIAR FOOD FRONTIERS AND SECURITY



What we have achieved

- Full deployment in Ethiopia and Mali
- Localized content for vegetable production and water use
- Partnership with UNHCR for scaling in Nigeria in 2026
- Planning underway to expand for cotton and soybean farming
- Application of the Sustainability Framework for increased vegetable production within environmental boundaries

Next steps for scaling impact

- Expansion to additional vulnerable communities in fragile areas
- Content adaptation for new crops, ecosystems and countries
- Translation in local languages
- Additional in-person training for extension workers and farmers
- Greater reach across fragile areas through strategic donor partnerships
- Greywater reuse guidance for home gardening in refugee camps, aligned with FAO and WHO safe water use principles

Unlocking the Potential of Irrigated Vegetables in Fragile and Conflict-Affected Settings

Crises in sub-Saharan Africa, driven by conflict, political instability, and climate shocks like droughts and floods, are becoming more frequent and severe. These emergencies have deepened food insecurity, especially in fragile regions. While humanitarian aid often focuses on staple crops to meet urgent needs, it tends to overlook irrigated vegetable farming, which can provide both better nutrition and extra income. To truly make a difference, interventions must go beyond emergency food relief. They need to tackle key challenges such as water scarcity, broken markets and weak local systems. This means adapting irrigation solutions to fit the type of crisis, whether it is a slow-onset drought, a sudden flood, or long-term displacement. Locally appropriate technologies, flexible designs, and strong collaboration with communities and partners are essential to ensure lasting impact.

What the Portal Includes

The VICR portal is a web-based digital resource developed to help humanitarian organizations plan, design, and implement irrigated vegetable production (IVP) in crisis-affected areas. It delivers a structured toolkit composed of three interactive modules that support users across the full intervention cycle, from feasibility assessments to technology matching and field guidance.

The portal contains three modules:

The Interactive Decision-Making Process Tool
to support crisis-specific IVP feasibility assessments, context framing (e.g., type of crisis, enabling environment) & design of appropriate interventions

The Irrigation Technology Suitability Dashboard
to identify potential IVP expansion and suitable technology options within sustainable water limits by understanding local socio-economic conditions

The Resource Center
contains policy briefs, training materials, how-to documents, tools guidelines and videos to inform and support equitable, sustainable IVP implementation in crisis settings

Why VICR Delivers Value for Money

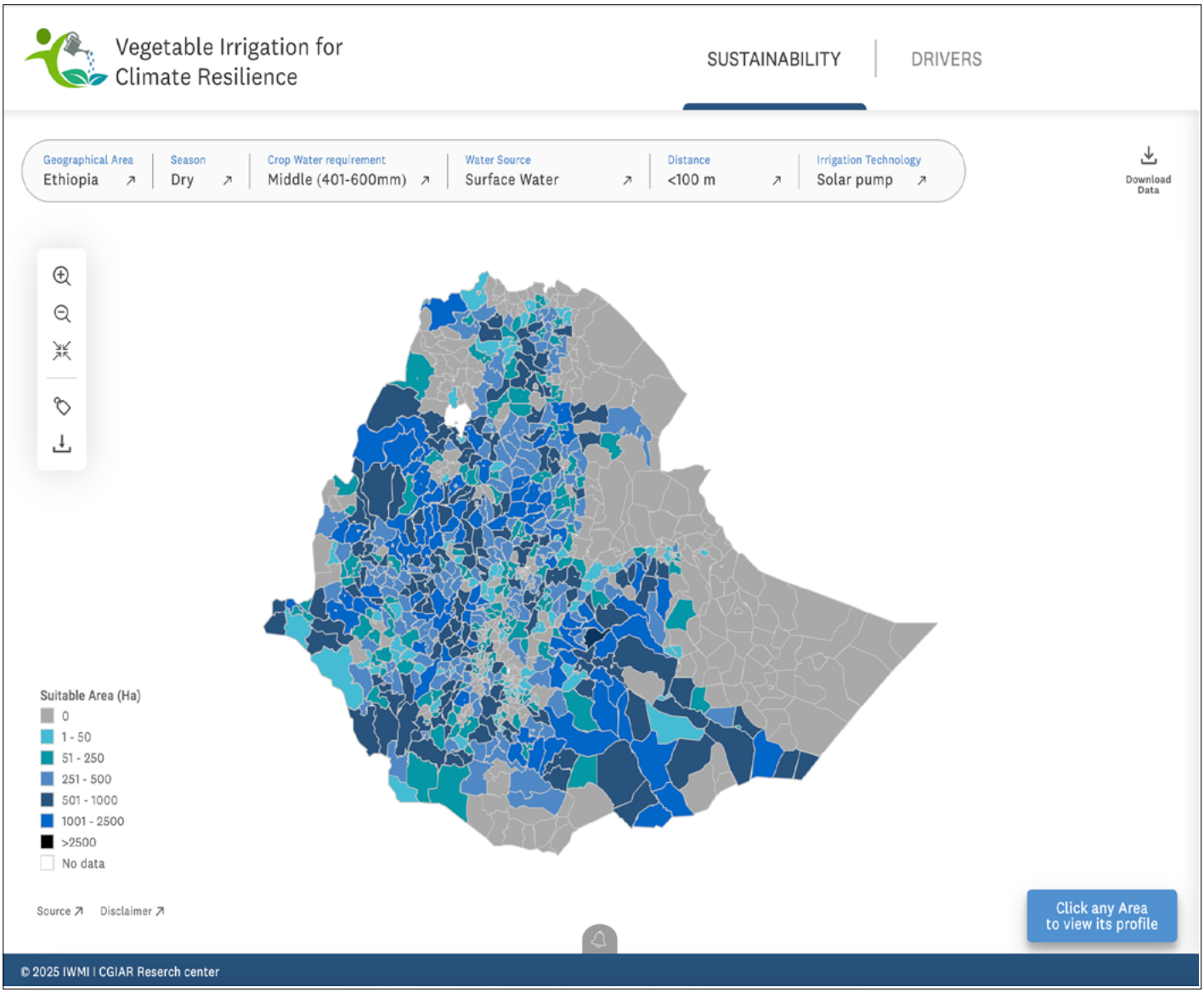
VICR is a free, open-access digital platform, designed for low-connectivity environments and with gender- and context-sensitive approaches (Figure 1). It promotes self-reliance and reduces dependency on aid, supporting both humanitarian and development planning. With the right support, VICR can become a go-to planning tool across humanitarian operations in the Sahel, Horn of Africa, Middle East and beyond.

The WHO recommends **400 grams** of vegetables per person per day

Most FCAS fall far below this line:

- Mali 148 grams
- Ethiopia 29 grams
- DRC 23 grams

Vegetables can be water-intensive and many FCAS are among the most water-scarce globally, with **12 of the 17** stressed countries in West Asia/North Africa



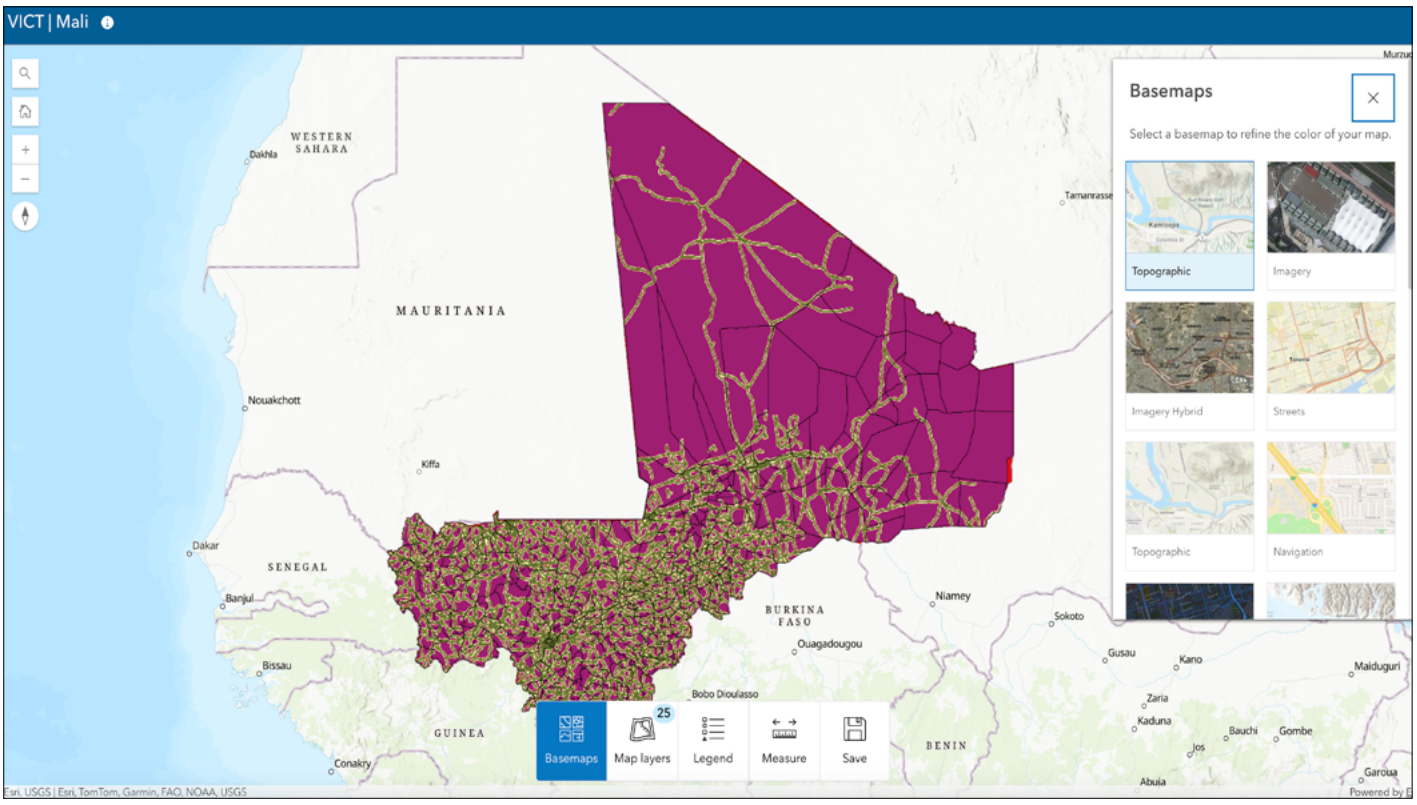


Figure 1. Screenshots from the VICT platform interface.

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CGIAR Food Frontiers and Security Program

The CGIAR Food Frontiers and Security Program focuses on strengthening fragile, urban and island food systems by catalyzing innovative policies, investments and local capacities to improve food and water security, nutrition and climate resilience for the world's most vulnerable communities. https://www.cgiar.org/cgiar-research-porfolio-2025-2030/food-frontiers-and-security/

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