

ADAPTATION FUND
Climate Innovation Accelerator
SMALL GRANTS. BIG IMPACT.

SOLUTION FACTSHEET

Responsive Drip Irrigation: Empowering Plants to Self-regulate Their Water and Nutrients

2025–2027

UN WFP World Food Programme | INNOVATION ACCELERATOR

Solution Summary

Location:
Jordan

Solution type:
Plant-Responsive Subsurface Irrigation

Innovation stage:
Transition to Scale

Grantee:
Responsive Drip Irrigation Material Trading Limited

Implementing entity:
World Food Programme

Funding received:
USD 180,000 (Adaptation Fund)

ADAPTATION FUND

The Adaptation Fund Climate Innovation Accelerator provides grants and technical assistance to innovative solutions for adapting to climate change.

Responsive Drip Irrigation (RDI) is an innovative, nature-inspired subsurface irrigation technology that responds directly to plant root signals, enabling plants to receive water according to their needs.
unlike conventional irrigation systems that rely on predetermined schedules, RDI uses plant-responsive technology to deliver water on demand, reducing unnecessary irrigation while supporting healthier crop growth, improved water-use efficiency, and climate-resilient agriculture.

Adaptation Innovation

- Plant-responsive irrigation: RDI's patented technology responds to plant root signals, delivering water according to plant demand rather than fixed irrigation schedules.
- The subsurface delivery system operates without electronic sensors, timers, or electrically controlled valves. Gravity-fed configurations can operate without electricity.
- By delivering water directly in the root zone, RDI helps minimize unnecessary water use and supports agricultural production in water-scarce and challenging growing environments.

Climate Impacts

The solution is helping Jordan adapt to:

Drought and water security

High temperatures and heatwaves

Key Achievements

- RDI technology has been deployed in 15 countries, supporting water-efficient agriculture across diverse climates, crops, and farming conditions.
- Field applications have demonstrated significant water savings, with reported reductions of up to 50% or more in certain settings, while maintaining or improving crop productivity.
- The RDI system creates jobs by empowering the farmers (small land holders), since the system does not require well established infrastructure to run the farming operations.
- In 2025, through WFP-supported implementation in Jordan, RDI systems were installed by 67 smallholder farmers, with an estimated reach of 321 farmers when household multipliers are applied. Participating farmers reported water-use reductions of up to 60%, alongside improvements in crop performance and resource efficiency.

Replication and Scaling Potential

- RDI offers significant potential for replication across Jordan, the MENA region, and other water-stressed markets.
- its adaptable, low-energy technology can be deployed across smallholder farms, commercial agriculture, and landscaping applications. Expansion can be supported through local distribution partnerships, farmer training, demonstration projects, and collaboration with governments, NGOs, and development organizations.

To learn more, visit WFP-AFCIA RDI

Investment Potential

- **Business model:** RDI generates revenue through irrigation system sales, technical design, installation support, and related services. RDI's business model is built around strategic distributors and local partner networks, which serve as the primary drivers of market expansion, enabling RDI to scale into new markets, strengthen local presence, and reach more customers. This approach is further supported by institutional partnerships and large-scale project opportunities.
- **Revenue per year:** USD 712,547/-
- **Sustainable approach:** A scalable commercial model supported by local distributors, institutional partnerships, technical training, and demonstrated farmer-level economic benefits.

Project Location



Last updated: 30/10/2026