AWD: Alternate Wetting and Drying Irrigation System

Dry Out the Methane. Green Up Your Harvest.

Alternate Wetting and Drying is a scheme-ready water-management protocol for irrigated rice. It replaces continuous flooding with controlled wet–dry cycles triggered by a subsurface water threshold, improving water productivity, maintaining yields, and reducing methane.

International Rice Research Institute

CGIAR

International Rice Research Institute (IRRI)

Adebayo Oke

Commodities

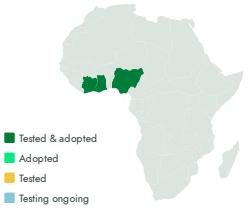
Rice

Sustainable Development Goals

Categories

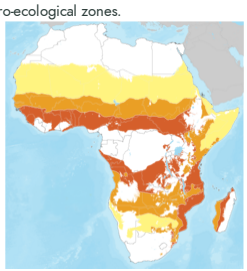
Production, Practices, Water management

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.



Target groups

Farmers

⚠ This technology is **not yet validated**.

8·5 Scaling readiness: idea maturity 8/9; level of use 5/9

Inclusion assessment

Climate impact 6

Problem

- Existing schemes cannot serve all farmers/hectares with current water under continuous flooding.
- Over-extraction of canals/groundwater threatens long-term water security.
- Rice methane is a significant source of national greenhouse gases, undermining climate targets.
- Public costs rise with pumping/electricity for irrigation service.
- Lack of a simple, standard water-management protocol reduces scheme efficiency.

Solution

- **Boosts Water Security** by maximizing rice production with less water.
- **Achieves Climate Goals** by cutting methane emissions by 30–50%.
- **Supports Food Security** by maintaining stable yields despite limited water.
- **Aligns with Sustainable Policies** (e.g., climate adaptation and resource management).
- **Improves Irrigation Management** by providing a protocol for controlled wet–dry cycles.

Key points to design your project

Alternate Wetting and Drying (AWD) is a **water-saving** rice irrigation method that reduces **methane emissions** by **30–70%** and **irrigation water use** by **15–30%**. It supports **climate action (SDG 13)**, **clean water (SDG 6)**, and higher **farmer income (SDG 1)**. With inclusive training, it also strengthens **women's roles** in **water management** (**SDG 5**).

To implement AWD, start by supporting **national strategies**, updating **irrigation quotas**, and aligning **agriculture** and **water institutions**. Basic **monitoring systems** and **financial incentives** like **carbon credits** help track and reward adoption.

Field-level work includes improving **irrigation infrastructure**, **land leveling**, and using simple **field tubes** to monitor water. Farmers irrigate only when the water drops **15 cm below** the surface. Training should cover this tool, **straw** and **fertilizer management**, and be inclusive of both **men and women**.

Work with partners like **IRRI**, **AfricaRice**, **local extension services**, and **farmer cooperatives**. Use **demo plots**, **visual tools**, and **simple messaging** to show farmers that AWD protects **yields**, reduces **water costs**, and increases **net income**.

15–30 %	48 %	IP
Water use reduction	Greenhouse Gas Emissions Reductions	Open source / open access