

AWD: Alternate Wetting and Drying Irrigation System

Dry Out the Methane. Green Up Your Harvest.

Alternate Wetting and Drying is a low-cost, farmer-friendly practice for irrigated rice. By using the field's subsurface water level to time wetting and drying, it typically reduces irrigation by 15–30%, lowers pumping costs, and decreases methane emissions without sacrificing yield.



International Rice Research Institute
CGIAR

International Rice Research Institute (IRRI)
Adebayo Oke

This technology is **validated**.

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

Inclusion assessment

Climate impact **6**

Problem

- Smallholders have thin profits due to high irrigation fuel/fee costs in dry seasons.
- Communities face unreliable access to enough water to finish the season.
- Farmers lack a low-cost, proven practice to save water without risking yield.
- Projects need measurable, field-level methods to show water savings and methane reductions. Adoption stalls when options are complex or capital-intensive.

Solution

- **Lowers Farmer Input Costs**, directly raising net incomes for smallholders.
- **Increases Resilience** to droughts and water shortages for communities.
- **Promotes Climate-Smart Agriculture** through methane reduction and freshwater preservation.
- **It is Highly Accessible** as a low-cost practice requiring only knowledge and simple tools.
- **Advances Multiple SDGs** (e.g., Zero Hunger, Clean Water, Climate Action, No Poverty).

Commodities

Rice

Sustainable Development Goals

Categories

Production, Practices, Water management

Tested/adopted in

■ Tested & adopted
■ Adopted
■ Tested
■ Testing ongoing

Where it can be used

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

Target groups

Farmers

Key points to design your program

Alternate Wetting and Drying (AWD) is a proven, low-cost, and scalable irrigation method for lowland rice that reduces methane emissions (by 30–70%) and irrigation water use (by 15–30%) without lowering yields. It boosts smallholder resilience, income, and climate-smart agriculture, making it highly suitable for development programs.

AWD has been validated in Asia and increasingly in Africa—particularly in Senegal, Ghana, and Mali—through TAAT and AfricaRice trials. It shows strong results: stable or improved yields, less water use, and reduced fuel costs. It also supports **SDGs** like **Zero Hunger**, **No Poverty**, **Clean Water**, and **Climate Action**.

NGOs and projects can scale AWD by working with **research partners** (IRRI, AfricaRice), **extension systems**, **Water User Associations**, and **water authorities**. Success depends on **training farmers** (especially women), using **field water tubes**, and ensuring proper **infrastructure** and **irrigation scheduling**. Simple demo plots and digital tools help build trust and track results. With low startup costs and potential access to **carbon credits**, AWD offers a high return for both farmers and funders.

60 USD Cost per hectare	85 USD Revenue per hectare	25 USD Net income per hectare	42 % ROI per season/per hectare
15–30 % Water use reduction	48 % Greenhouse Gas Emissions Reductions	IP Open source / open access	



AWD

<https://taat.africa/jdj>

Last updated on 6 March 2026, printed on 6 March 2026

Enquiries e-catalogs@taat.africa