

# AWD: Alternate Wetting and Drying Irrigation System

Dry Out the Methane. Green Up Your Harvest.

Alternate Wetting and Drying is an intermittent irrigation method for rice. It alternates brief dry periods with shallow re-flooding based on the water level below the soil, cutting water and energy use while keeping yields stable and lowering methane emissions.



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

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

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

### Problem

- Irrigation and energy bills are high because continuous flooding uses more water than needed.
- Water scarcity and unreliable deliveries disrupt planting and supply to mills.
- Flooded paddies create methane, increasing climate risk and reporting pressure.
- Low water productivity across estates and outgrowers hurts margins.

### Solution

- Reduces Input Costs** by saving ~25–30% on irrigation water, fuel, or electricity.
- Ensures Stable Output** by maintaining yields and crop quality.
- Generates New Revenue** potential through carbon credits and green financing.
- Improves Operational Efficiency** by reducing the number of irrigations (by ~25%).

### Key points to design your business plan

**Alternate Wetting and Drying (AWD)** offers high returns by cutting **water costs**, reducing **methane emissions**, and maintaining **yields**. It saves **15–30%** irrigation water and can increase profits—especially for pump users—by up to **400–800%**. AWD also supports **climate branding** and access to **carbon finance**.

It is ideal for **agribusinesses**, **outgrowers**, and **rice value-chain companies**. Key needs include training on AWD and co-management practices, simple tools like **field water tubes**, **leveled fields**, and strong irrigation systems. Advanced users may use **digital sensors** to track results.

Partners like **IRRI**, **AfricaRice**, **development banks**, and **water agencies** are critical. Minimal investment is needed—mostly for training and monitoring—while savings and climate benefits are high. To succeed, businesses must assess infrastructure, weed control, and ensure staff and farmers follow **safe AWD practices**.

Inclusion assessment 5 5

15

Climate impact 6

