

# TAAT – Water Enabler Compact

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Innovative water solutions for sustainable development

Food · Climate · Growth

# Presentation outline

- Introduction to IWMI
- TAAT and the AfDB
- Water Enabler – Goal and objectives
- How we scale water solutions
- Partnerships
- Technologies being scaled in toolkits
- Success stories
- Next steps



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## VISION

A water secure world



## MISSION

To provide water solutions for sustainable, climate-resilient development



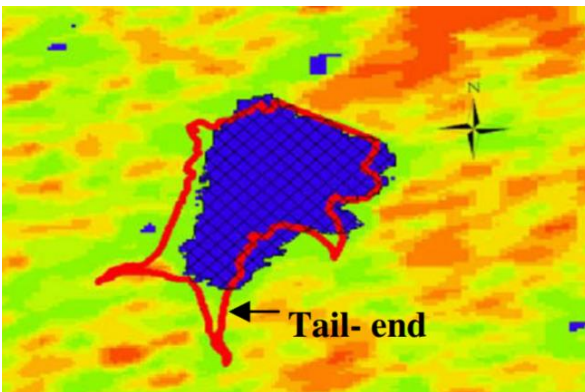
## RESEARCH

Science for a transformative agenda

# IWMI

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- Global (R4D) organization
- Network of scientist in 13 regional office in Asia and Africa
- Headquarters since 35+ years in Sri Lanka
- Working on land and water challenges and solutions across scales:  
*farmers, communities, river basins, country, continental and global*



## Food

To improve food security while sustainably managing water resources and ecosystems



Water, food & ecosystems

## Climate

To adapt to and mitigate climate change while building resilience to water-related disasters and disruption



Water, climate change & resilience

## Growth

To adapt to and mitigate climate change while building resilience to water-related disasters and disruption



Water, growth & inclusion



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# TAAT–Water Enabler – Goal and objectives

## Water is crucial in agriculture and for the success of TAAT!

Creating **resilience** among rural population, especially in **fragile regions** with low rainfall

Investments in **irrigation increases profitability** of agriculture

**Irrigation is attractive to youth** farmers and service providers and create high-end technical **jobs**

Technology toolkits with TAAT-WEC **water solutions boost crop productivity and income**



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# TAAT–Water Enabler – Goal and objectives

*The TAAT-WEC vision of success is **widespread adoption and use of small-scale irrigation and water management technologies** to achieve sustainable increase in agricultural productivity, reduction in poverty and rural transformation through viable value chains across Africa*



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# How we scale water solutions

## Enables 4 value chains:

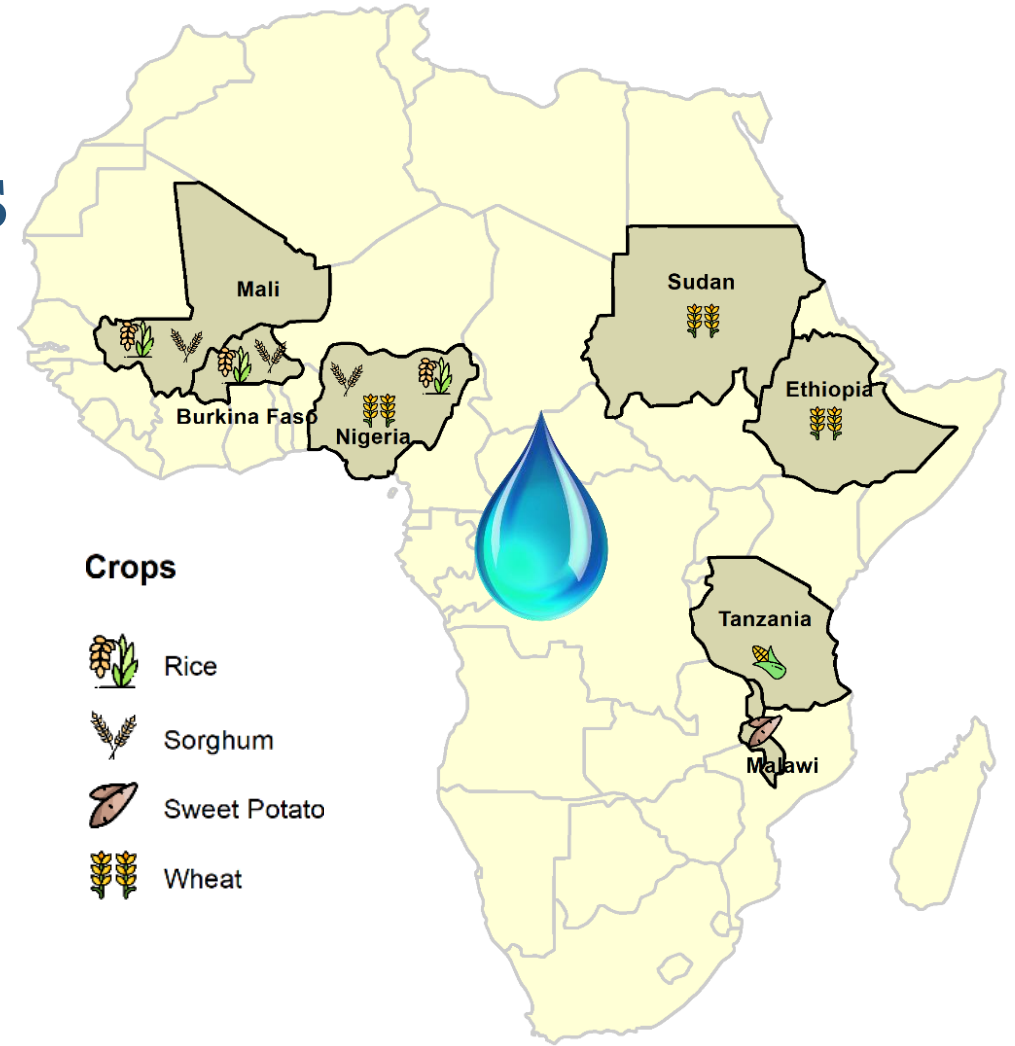
- Sorghum/Millet
- Wheat
- Rice
- Orange-Fleshed Sweet Potato

## Implementation in:

West-Africa: Mali, Burkina Faso and Nigeria

East-Africa: Sudan, Ethiopia

Southern-Africa: Malawi



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# Partnerships

**National Partners** are national agricultural research institutes hosting the national coordinators

Advantages:

- mandated by governments
- strong links with extension services
- government agencies
- Good coordination between different compacts within the same institute

Responsible for implementing activities, in-country coordination with other Compacts

Mali: Institut d'Economie Rural (IER)

Burkina Faso: L'Institut de l'Environnement et de Recherches Agricoles (INERA)

Nigeria: Institute of Agricultural Research (IAR)

Ethiopia: Ethiopian Institute of Agricultural Research (EIAR)

Malawi: International Potato Center (CIP)

Sudan: Agricultural Research Corporation (ARC)



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# How we scale water solutions

TAAT-WEC operational scaling approach:

1. Train **extension agent** and **youth service provider** in water solutions
2. Provide the water solution (technology) that they will **jointly demonstrate to farmers** in local events
3. **Youth service provider delivers services** (feasibility, installation and maintenance) to farmers



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# Technologies being scaled in toolkits

## CREATING WATER SOLUTIONS

- **Matching of appropriate technologies to farmer needs**, affordable and efficient, site-specific and crop-specific
- **Design and implementation** of water solutions

IWMI and its partners are knowledge brokers! We match existing technologies with farmers' needs.



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# Technologies being scaled in toolkits

## FOR IRRIGATED AGRICULTURE

<b>I. Irrigation water development</b>
T1 River water pumping
T2 Shallow Groundwater Tubewell
T3 Close Pipe Conveyance System
<b>II. Irrigation Water application</b>
T4 Basins and furrows
T5 Sprinkler Irrigation Systems
T6 Drip Irrigation system
<b>III. Irrigation Scheduling</b>
T7 Irrigation scheduling w/ Wetting Front Detector
T8 Irrigation scheduling w/ Chameleon Soil Water Sensor

## FOR RAINFED AGRICULTURE

<b>IV. In-situ soil moisture conservation techniques</b>
T9 Assessing contours
T10 Stone lines
T11 Contour ridging
T12 Tied ridge
T13 Land Levelling
T14 Zai & half moon
T15 Mulching



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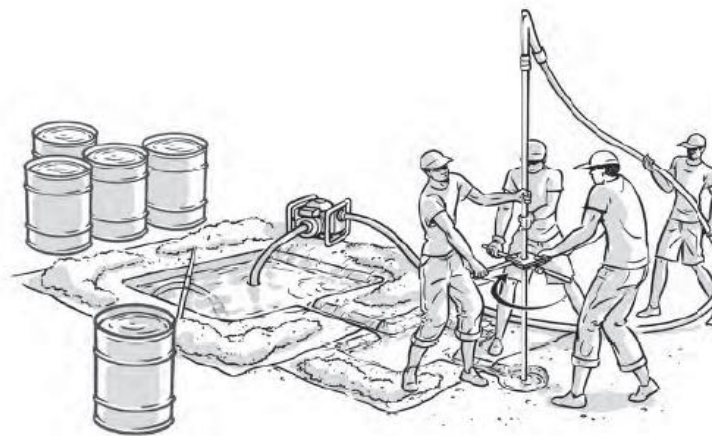
## T2: Shallow tube-wells for groundwater

**Domain:** irrigated agriculture; shallow groundwater availability less than 10 meter from the surface

**Compacts enabled:** Wheat, Maize, Rice, Vegetables, Aquaculture, OFSP (vines), Sorghum (seed)

**Potential benefits:** Initial investments are low when the *jetting* installation technique. Thereafter water can be lifted at relatively low cost with small motorized pumps or for free using solar pumps.

Shallow tube well technology permits farmers to cultivate off-season or deploy supplementary irrigation during the main season in case of drought spells.



# T5: Sprinkler irrigation

**Domain:** irrigated agriculture

**Compacts enabled:** Wheat, Maize, Rice, Vegetable, Orchards

**Potential benefits:** sprinkler irrigation gives better efficiency than surface irrigation practices and it fits all type of landscapes. Sprinklers improve efficiency of field application and reduce water lifting costs. The system has a long-life span. Irrigation water use is reduced while increasing crop yields.

Sprinklers must be used in pressurized irrigation systems.



# T8: Chameleon Water Sensor

**Domain:** irrigated agriculture;

**Compacts enabled:** Wheat, Maize, Vegetables, Tree crops/Plantation

**Potential benefits:** The Chameleon Soil Water Sensor is a low-cost tool consisting of a card reader and 2 or 3 gypsum sensors that are placed at different depths in the soil. It supports farmers in learning optimal irrigation water application by saving water and increasing nutrient efficiency. Profitability can increase by 10 to 30 %.

The card reader is connected to the sensor and a blue, green and red light shows the farmer respectively where in the soil there is too much water, adequate water or too little water. Sensors are placed within the root zone and below.



# Success stories

**Compact enabled:** Rice

**Partnerships:** IAR, INERA, IER

**Where:** Nigeria, Mali, Burkina Faso

**Technologies:** shallow tube wells, conveyance systems, water lifting, improved varieties

**Impact:** expansion of cultivated area of rice in the off-season. Agricultural intensification and diversification of income. Increased income for female rice farmer groups.



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# Success stories

**Compact enabled:** Wheat

**Partnerships:** IAR, ARC, EIAR, ICARDA

**Where:** Nigeria, Sudan, Ethiopia

**Technologies:** land levelling, improved irrigation scheduling, heat-tolerant varieties, raised-bed

**Impact:** yields increased on average by on average by 60%. In Ethiopia water use decreased 18%. Water productivity increased 119% in Sudan. Tubewell technology leads to irrigated area expansion in Nigeria.



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