



Technologies for African Agricultural Transformation - Water Enabler Compact (TAAT-WEC)

Affordable and efficient irrigation and water conservation solutions for farmers in Africa

The water challenge in Africa

Smallholder farmers across sub-Saharan Africa (SSA) rely almost entirely on rain-fed agriculture. Only 4% to 7% of the region's arable land is irrigated. Inadequate and unreliable water supplies severely limit farmers' possibilities for intensifying crop production and enhancing resilience in the face of drought, rainfall uncertainty and climate change. For this reason, many farmers are keen to acquire the technical expertise and equipment needed to secure water for their crops, and explore irrigation technologies and methods to conserve water in the soil.

A study conducted by the International Water Management Institute (IWMI) showed the enormous potential for expanding irrigation in the region. In the 13 countries in SSA that were assessed, groundwater is not widely utilized. By tapping into this resource, the irrigated area could be expanded 120-fold to 13.5 million hectares. This expansion could improve the livelihoods of approximately 40% of the rural population.

Water solutions

As part of its Feed Africa strategy, the **African Development Bank (AfDB) launched the flagship program Technologies for African Agricultural Transformation (TAAT)** to boost agricultural productivity across the region. The TAAT program operates as a network of 15 interacting "Compacts", with nine of these

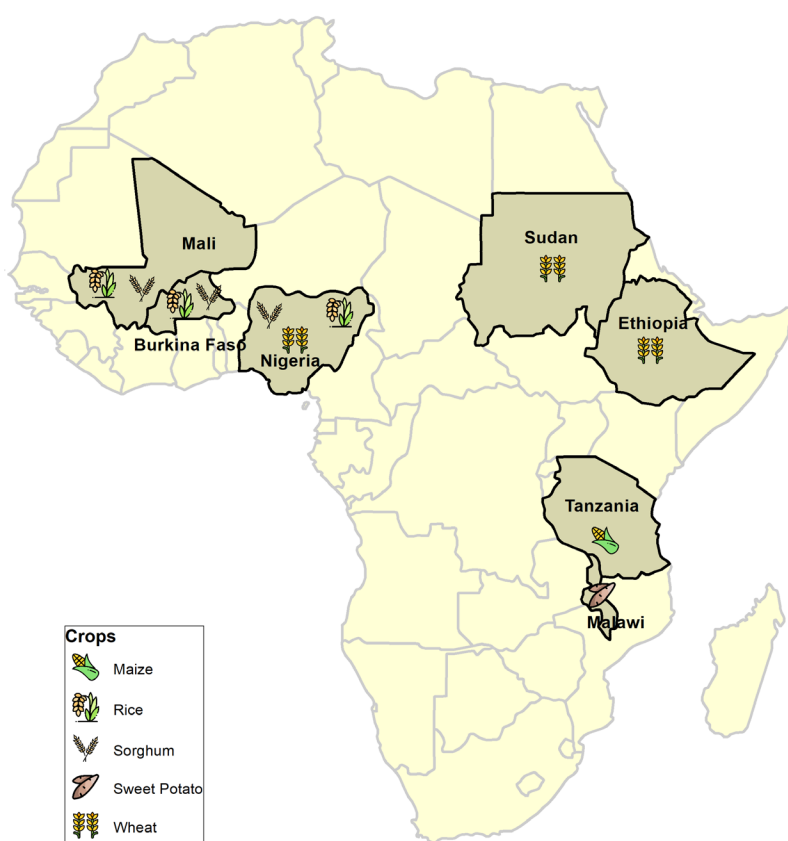
devoted to specific commodity value chains and six others serving as "Enablers" that provide specialist services that are required.

IWMI leads the TAAT Water Enabler Compact (TAAT-WEC), one of the enabler compacts to jointly scale out proven technologies with the nine commodity value chains. TAAT-WEC focuses mainly on irrigation and water management technologies that will help small-scale farmers increase sustainable agricultural production.

In line with its vision of a water secure world, IWMI, through TAAT-WEC, supports small-scale farmers with gaining access to low-cost irrigation and water management technologies. There is no 'one-size-fits-all' approach. Therefore, IWMI promotes initiatives to enable producers to opt for technologies appropriate for their fields that could increase crop yields and profitability. Currently, TAAT-WEC focuses on seven African countries (Nigeria, Burkina Faso, Mali, Ethiopia, Sudan, Tanzania and Malawi) and enables five commodity value chains (Wheat, Rice, Sorghum/Millet, Maize and Orange-fleshed sweet potato).

Over-irrigation leads to reduced crop growth and leaching of valuable nutrients. Water scarcity (as a result of droughts) and under-irrigation reduce the performance of modern crop varieties. TAAT-WEC targets both irrigation and rain-fed agriculture, and seeks to scale out technologies for in-situ water conservation.





The seven African countries targeted and five commodity value chains enabled by TAAT-WEC.

Some achievements of TAAT-WEC, thus far, are:

In collaboration with the Wheat Compact, wheat farmers in Sudan and Ethiopia were able to double their yields with technology toolkits that comprise drought-tolerant crop varieties and tools to optimize irrigation water supply to the fields.

In southern Burkina Faso and Mali, female rice farmers now cultivate two crops per year due to the provision of shallow tube well technologies and low-cost water pumps.

Farmers in Kano State, Nigeria, intensify land use through irrigation deployment and increase their profits due to efficient conveyance systems.

In Malawi, the quality and productivity of orange-fleshed sweet potato increased due to the development of low-cost irrigation technologies, including rain hoses and sprinklers.

Sorghum growers in Mali, Burkina Faso and Nigeria become climate-resilient by adopting short-season varieties and using water conservation approaches.

Partners for scaling

In TAAT-WEC, IWMI has brought together national agricultural organizations and five commodity value chain compacts to scale out technologies in seven target countries. TAAT-WEC enables the Wheat, Rice, Sorghum/Millet, Maize and Orange-fleshed Sweet Potato Compacts by creating an enabling environment for large-scale adoption of low-cost irrigation and water management technologies through policies and programs,

capacity development, and demonstration and visibility events.

The national agricultural organizations have a mandate to promote irrigation development in their respective countries, while maintaining strong links with water user and farmer associations, extension services, the government and the private sector. Through TAAT-WEC, they promote appropriate technologies in national programs and policies on agriculture and food security.

National agricultural organizations and commodity value chain compacts brought together to scale out technologies in seven target countries.

Country	National Partner	Lead Compact Institute	Compact
Ethiopia	Ethiopian Institute of Agricultural Research (EIAR)	ICARDA	Wheat
Sudan	Agricultural Research Cooperation (ARC)	ICARDA	Wheat
Nigeria	Institute for Agricultural Research (IAR)	ICARDA, ICRISAT, AfricaRice	Wheat, sorghum/millet and rice
Burkina Faso	Institut de l'Environnement et Recherches Agricoles (INERA)	ICRISAT, AfricaRice	Sorghum/millet and rice
Mali	Institut d'Economie Rurale (IER)	ICRISAT, AfricaRice	Sorghum/millet and rice
Tanzania	Tanzania Agricultural Research Institute (TARI)	AATF	Maize
Malawi	International Potato Center (CIP)	CIP	Orange-fleshed sweet potato

Scaling approach

Enabling environment

TAAT-WEC assesses national policies and programs to define opportunities and challenges for scaling out low-cost irrigation and water management technologies. Recommendations are provided where existing policies restrict scaling out. National governments are to adopt technologies suggested by TAAT-WEC through policies and programs.

Capacity development

TAAT-WEC develops capacity of extension agents and youth to support farmers in selecting appropriate technologies to gain access to water for irrigation. A facilitator manual for farmer-led irrigation,

technology sheets and training materials are being developed.

Demonstration and visibility

TAAT-WEC demonstrates technology toolkits consisting of modern crop varieties, good agricultural practices, and irrigation and water conservation technologies. Extension agents are promoting the use of technologies around established demonstration sites. Youth operate as service providers to farmers and brokers of these technologies.

TAAT-WEC and national partners create visibility to beneficiaries by linking to innovation platforms, and farmer and water user associations.

TAAT-WEC overview

Technologies for African Agricultural Transformation – Water Enabler Compact (TAAT-WEC)	
Project duration	February 2018 to November 2021
Funder	African Development Bank (AfDB)
Intervention countries	Burkina Faso, Ethiopia, Sudan, Tanzania, Malawi, Nigeria and Mali
Enabled commodity value chain compacts	Wheat, Rice, Sorghum/Millet, Maize and Orange-fleshed Sweet Potato



Dr Kalifa, national coordinator for Mali, explains soil moisture conservation technologies for sorghum during a farmer field day.



Maize farmers in Tanzania receive on-the-job training in irrigation development.



Farmer-led small-scale irrigation development around Blantyre, Malawi.

About Technologies for African Agricultural Transformation (TAAT)

The Technologies for African Agricultural Transformation (TAAT) program is funded by the African Development Bank (AfDB) and aims to increase agricultural production in Africa, through the deployment of proven and high-performance agricultural technologies. TAAT is a flagship program in the 'Feed Africa' strategy of AfDB.

The objective of TAAT is to rapidly expand smallholder farmers' access to high-yielding agricultural technologies that improve food production, ensure food security and increase rural incomes. The aim is to achieve this through the following three principal mechanisms:

1. Create an enabling environment for technology adoption by farmers.
2. Facilitate effective delivery of these technologies to farmers through structured regional technology delivery infrastructure.

3. Deployment of technologies, accompanied by good management practices, and vigorous farmer outreach campaigns at the country level.

TAAT brings together research institutes, public extension services, the private sector, and farmer and not-for-profit organizations involved in agricultural development. The program targets nine value chains that form Commodity Technology Delivery Compacts (referred to as 'Compacts'): Rice, Maize, Cassava, Wheat, Sorghum/Millet, Orange-fleshed Sweet Potato, High-iron Beans, Livestock and Small Ruminants, and Aquaculture. Six Enabler Compacts provide support services to the program: Soil Fertility Management, Water Management, Capacity Development and Technology Outreach, Policy, ENABLE TAAT, and Fall Armyworm. The International Water Management Institute (IWMI) leads the Water Enabler Compact (WEC).

All photographs: Sander Zwart

For more information:

Visit TAAT-WEC website:

taat-africa.org/water-management

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IWMI International Water Management Institute

IWMI is a CGIAR Research Center and leads the:



RESEARCH PROGRAM ON
Water, Land and Ecosystems

The International Water Management Institute (IWMI) is a non-profit, scientific research organization focusing on the sustainable use of water and land resources in developing countries. IWMI works in partnership with governments, civil society and the private sector to develop scalable agricultural water management solutions that have a real impact on poverty reduction, food security and ecosystem health. Headquartered in Colombo, Sri Lanka, with regional offices across Asia and Africa, IWMI is a CGIAR Research Center and leads the CGIAR Research Program on Water, Land and Ecosystems (WLE).

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