



Framework for Irrigation Development and Agricultural Water Management (IDAWM) in Africa in the context of PIDA transboundary water infrastructure



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- **The Need:** Reliable access to sufficient quantity and quality water is a critical constraint to agricultural growth and development in the Continent.
- Against the back drop of **high climatic variability, widespread aridity and associated challenges of low production**, conflicts over natural resources, displacement and outmigration etc limits ability to attain development (SDGs and Continental) goals.
- Estimated that **29% more irrigated land will be required by the year 2025 in order to sustain food production and reduce poverty** on the continent (IWMI2016).
- **The African Union**, through a number of **Decisions and Declarations** (eg, 2003-CAADP, 2004-Sirte Declaration, 2006-Abuja Food security Summit, 2008-Sharm El shiek, 2013- Agenda2063, 2014-Malabo) stressed the importance of IDAWM in driving agricultural growth and development in the Continent.



Purpose:

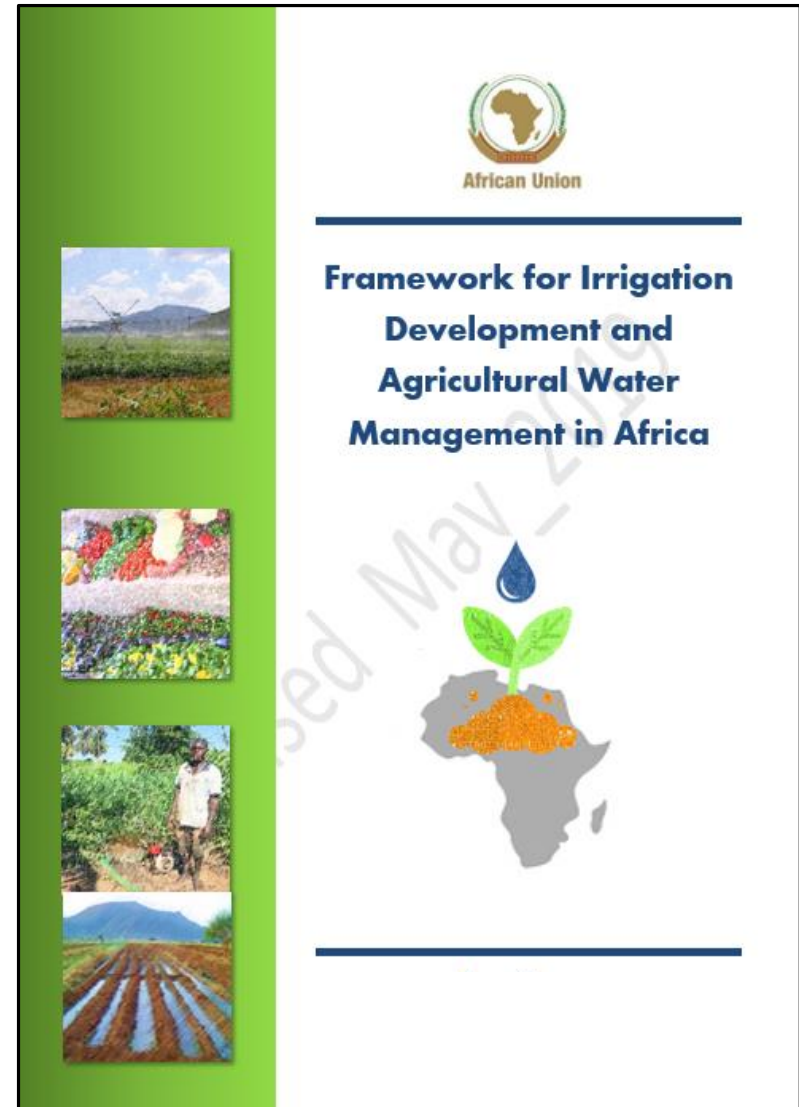
1. support regional and country level in the design and review of their Agricultural Water Management (AWM) policy and strategic plans
2. stimulate interest in irrigation and agricultural water development efforts by providing a suite of development options that can be exploited
3. act as a prompt for new ideas and detail in regional and country institutional interventions and project plans

Structure:

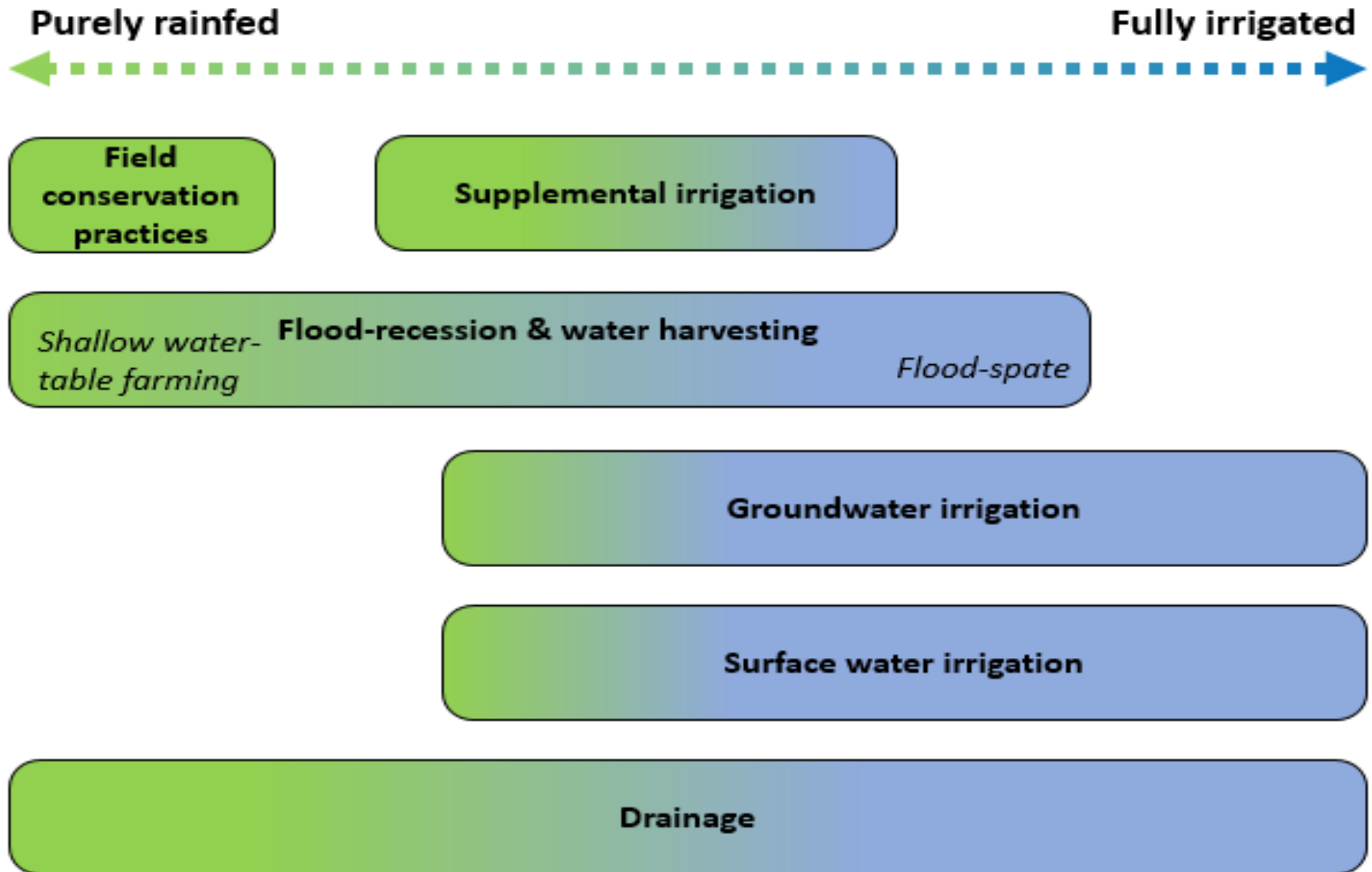
Chapter1: The Framework in context, The Rationale, Methodology, Categorization of the agricultural water management spectrum

Chapter2: Opportunities and Challenges in IDAWM in the continent and Lessons learnt

Chapter 3: The development pathways- rational and key interventions needed for success, cross-cutting development issues, Conclusion and Recommendations



AWM Spectrum



The development Pathways proposed in the framework cover the whole spectrum of AWM

PATHWAY 1: Improved water control and watershed management in a rain-fed environment

Rationale:

- Rain-fed agriculture covers more land
- dominant production system practised by the majority of small holders who represents over 80% of farm producers

Some Interventions

- Introduction of water harvesting techniques in response to landform, climate and cropping preferences
- Institutional reform initiatives to achieve better coordinated local water resource use;
- Agro-credit supports to facilitate adoption of WHC technologies
- Use of climate-smart agricultural (CSA) principles and promotion of the related suite of approaches, tailored for local conditions, cropping patterns and markets
- Attention to soil conservation hot-spots, including linkages with upstream land-use and downstream irrigation abstraction requirements



Rainwater Harvesting for Irrigation

PATHWAY 2: Farmer-led irrigation

Rationale:

- dominated irrigation expansion in the last two decades, Typically irrigate small plots,
- Ease of integration into existing cultural practices viz multiple cropping
- Technologies are cheap, easily moved between plots and easy to maintain

Some Interventions proposed

- Access to affordable silt control and irrigation technology
- access to modern financing technology,
- Institutional and legal reforms eg. and tenure (land and water) security
- Elimination or reduction of import tariffs on pumps and irrigation equipment
- National standards can protect consumers interests in regard to pumping technology (petrol, diesel) and solar energy technology.
- Knowledge development and training on usage and maintenance of small-pumps and solar-energy technologies.
- Specific enabling water-law reforms to reduce exposure to water-tenure risks



PATHWAY 3: Large-scale irrigation scheme renovation/modernisation

Rationale:

- In most countries, public large scale Irrigation schemes are typically older, with major supply and distributary conduit systems.
- Most of the schemes are performing below capacity
- Large scale irrigation scheme necessitates an emphasis on market-based irrigation farming
- Modernisation of existing schemes makes sense as a priority because of the sunk economic costs and the expectation of higher returns than for new schemes.

Some Interventions proposed

- Enabling legal reforms in regard to land-consolidation
- Formalise WUO powers
- Reforms related to improving Management Operation Maintenance on public schemes.
- Promote use of smart technologies to allow volumetric billing
- Drive attitudinal change at farmers' level to move from socially-oriented scheme origins to business production
- Institute private-sector or agency management of bulk-water supply systems.



PATHWAY 4: Wastewater recovery and re-use

Rationale:

- Water shortages are an increasingly serious issue across Africa and rapid urbanisation presents an opportunity in waste-water re-use as an important alternative resource.
- The use of sewage and wastewater for irrigation is a common practice in rural and peri-urban areas of most developing countries.
- Wastewater may contain nutrients that can boost crop growth and reduce chemical fertilizer use

Some Interventions proposed

- Regulatory measures to ensure safe water quality related to different crops, and on-farm practices and technologies to ensure a safe working environment, and adequately safe products
- Promote and adapt international safety guideline, to the social, technical, economic, and environmental circumstances of the countries.
- Strong campaigns on awareness creation and public sensitization on treatment and use of waste water for irrigation
- Research, knowledge development and application of measures to ensure safe use of waste water for irrigation



Typology of the potential benefits of transboundary water cooperation

Improved water management	Economic benefits	Social and environmental benefits
	<ul style="list-style-type: none"> - Expanded activity and productivity in economic sectors (aquaculture, irrigated agriculture, mining, energy generation, industrial production, nature-based tourism) - Reduced cost of carrying out productive activities - Reduced economic impacts of water related hazards (floods, droughts) - Increased value of property 	<ul style="list-style-type: none"> - Health impacts from improved water quality and reduced risk of water-related disasters - Employment and reduced poverty impacts of the economic benefits - Improved access to services (such as electricity and water supply) - Improved satisfaction due to preservation of cultural resources or access to recreational opportunities. - Increased ecological integrity and reduced habitat degradation and biodiversity loss - Strengthened scientific knowledge on water status
Enhanced trust	Regional economic cooperation benefits	Peace and security benefits
	<ul style="list-style-type: none"> - Development of regional markets for goods, services and labour - Increase in cross-border investments - Development of transnational infrastructure networks 	<ul style="list-style-type: none"> - Strengthening of international law - Increased geopolitical stability - strengthened diplomatic relations - New opportunities from increased trust (joint initiatives and investments) - Reduced risk and avoided cost of conflict and savings from reduced military spending - Creation of a shared basin identity

Populations in different countries are intrinsically linked by transboundary basins and aquifers, making them interdependent, not just hydrologically but also economically and socially, because transboundary waters are used for a range of livelihoods activities

If strategically managed, transboundary river basins can be a source of cooperation. Transboundary water cooperation:

- provide drinking and domestic water
- support irrigation for agriculture,
- Facilitate transportation and industrial development
- generate electricity
- conserve ecosystems
- Promotes enhanced resilience to disasters and
- Promotes economic integration



In the 2014 Malabo Declaration, African Heads of States and Government defined the immediate future of African economies around agriculture.

Agriculture growth for improved livelihoods and shared prosperity

- Agricultural productivity grew from greater use of water for irrigated agriculture. It benefited farmers and poor people—propelling economies, improving livelihoods, and fighting hunger.
- 29% more irrigated land will be required by the year 2025 in order to sustain food production and reduce poverty in the continent





**Thanks
Merci
Shoukran**

