



United Nations
Office of the Special Adviser
on Africa

Webinar

“Innovative Science and Technology Solutions for Water Security and Sanitation in Africa”

When: Friday, 27 February 2026

**Time: 9:00 AM to 11:00 AM (New York/EST)/ 2:00 PM to 4:00
PM (UTC)**

UN-OSAA Think Tank Network and ACBF

In Partnership with:



Introduction

An estimated 2 billion people lack safe drinking water, and about 5.4 billion don't have access to safely managed sanitation service¹. Water Security is the ability of a population to ensure consistent availability and access to high-quality water in quantities that facilitate health, support livelihoods, enable socioeconomic development, and preserve ecosystems for future generations.

70 percent of Earth's surface is covered by water, only 3 percent of the planet's water supply is freshwater, and only a fraction of that water is accessible for use².

Water security and sanitation service delivery are intricately linked to women's and girls' outcomes. When sanitation services are insufficient, and water is scarce due to environmental factors or underdeveloped infrastructure, women and girls lose economic and educational opportunities as water collection duties take significant time and in most communities are assigned to women and girls. Retrieving water from unfamiliar or distant locations increases the risk of encountering gender-based violence. Water security includes protection from challenges caused by water-related disasters while protecting Women and girls, responsible for gathering water in many communities without piped access.³

The Theme of the webinar is aligned with the African Union's 2026 Theme of the Year, **Assuring Sustainable Water Availability and Safe Sanitation Systems to Achieve the Goals of Agenda 2063**. The theme responds to the continent's persistent water insecurity, rising climate risks, and the need to accelerate SDG 6 while advancing Agenda 2063's vision of environmentally sustainable and climate-resilient development. The theme examines **Water, Sanitation and Hygiene (WASH)** as strategic assets that underpin health, industrialization, sustainable urbanization, climate resilience, and peace.

Clean, safe, uncontaminated and accessible sources of water remain vital and productive asset, critical for the maintain of lives and livelihoods. As unclean and contaminated water can lead to diseases and death. It is important to reposition water and sanitation systems as drivers of economic transformation and sustainable urbanization in Africa. Emphasizing water and sanitation as building blocks to support Africa's durable peace, energy and food security, as indicated in the African Union's Agenda 2063⁴

¹ UN-Water- <https://www.unwater.org/publications/who/unicef-joint-monitoring-program-update-report-2023>.

² <https://www.nationalgeographic.com/environment/article/freshwater-crisis>.

³ <https://www.unicef.org/wca/reports/progress-household-drinking-water-sanitation-and-hygiene>.

⁴ African Union, Agenda 2063, <https://au.int/en/agenda2063>

developmental blueprint, the Africa we want and Agenda 2030⁵ for Sustainable Development. The effective management of Africa's water resources is a prerequisite for Africa's sustainable industrialization as part of its structural transformation envisaged in Agenda 2063.

The dividends of clean water and sanitation as a strategic asset can be harnessed through human capital, sustained investment in human capital is required in education and skills development with a particular focus on Science, Technology and Innovation, to unlock the productive opportunities, jobs and livelihoods that may be generated by strategic assets.

From a governance perspective, Institutions are needed at the national level which allow for the delivery of accountability relating to strategic asset management and this has to be reflected at the local institutional level.

Advocating for a strategic asset management approach to water resources, the webinar aims to transform water and sanitation systems as drivers of economic transformation and sustainable urbanization in Africa, as well as analyzing how water and sanitation can support Africa's durable peace, energy and food security, The webinar seeks to amplify a new narrative for Africa from Africa and foster global consensus on innovative solutions to achieve both Agendas 2030 and Agenda 2063.

Background and Thematic Focus

Tackling Africa's water security and climate challenges requires strategic planning, investment in resilient infrastructure, and policies that integrate climate adaptation into water management frameworks. Global water resources are facing significant challenges, which are even more critical in Africa, where an estimated 2.5 billion people are predicted to live by 2050, up from the 1.4 billion⁶ who live there now. Some of the challenges include a lack of access to basic drinking water, affecting about 411 million people, almost a third of Africa's population, in 2020⁷.

Linked to the reinforcement of the planning function around Africa's assets, education and skills development needs to be identified and aligned with the needs of the productive development of the assets.

This education and capacity development needs to be led by the state but can be accompanied by appropriate skills development also provided through the private sector.

⁵ UN Agenda 2030 for Sustainable Development, <https://sdgs.un.org/2030agenda>

⁶ International Monetary Fund, IMF, African Century, A demographic transformation in Africa has the potential to alter the world order, September 2023, <https://www.imf.org/en/publications/fandd/issues/2023/09/pt-african-century>.

⁷ Article, Preserving Africa's Water Resources 2025, www.afdb.org.

Water is a fundamental resource for Agenda 2030 for Sustainable Development, the 17 goals, in particular SDG 6, and to Africa's sustainable development as highlighted in Agenda 2063. The African Union has intimated that for every dollar invested in water and sanitation, it generates at least seven dollars in benefits across health, education, food security, environmental protection, gender equality, Agenda 2063 and the UN sustainable development goals⁸. This demonstrates the correlation between water, sanitation, and sustainable development. Therefore, Investment in water infrastructure is key to realizing Africa's full human and economic potential and powers Africa's structural transformation.

According to the International High-Level Panel on Water Investments for Africa, poor water infrastructure in Sub-Saharan Africa costs the region a loss of 5% of its GDP annually, equivalent to \$170 billion⁹. This trend needs to be reversed and the loss in revenue invested into reliable accessible safe drinking water and proper sanitation for all in Africa¹⁰.

Water is a critical economic driver in Africa, cross cutting over multiple sectors, including agriculture, health, energy and urbanization. More than 70% of Africa's population depends on Agriculture for livelihoods and jobs, this makes water a critical resource for jobs, productivity and food security¹¹. Hydropower provides nearly 20% of Africa's electricity, making a direct correlation between water security and energy security¹².

Challenges to water security in Africa are numerous, including hydrology, climate change, heavy rainfall, and flooding, which impact water, contaminating freshwater with saltwater, while higher water temperatures facilitate the proliferation of harmful algal blooms, hindering water quality even more. In addition to policy framework and structural challenges. Demand for freshwater is projected to exceed supply by 40% by 2030¹³, putting at risk the achievement of SDG 6 and threatening all SDGs, including those on food security, poverty, gender equality and peace. Tackling water scarcity due to excess demand and climate change will require a dramatic improvement in how we manage

⁸ Aligning Africa to the UN System-wide Strategy for Water and Sanitation, July 2024, <https://aipwater.org/aligning-africa-to-the-un-system-wide-strategy-for-water-and-sanitation/>.

⁹ African Union International High-Level Panel on Water Investments for Africa, Africa's Rising Investment Tide, July 2024, <https://aipwater.org/wp-content/uploads/2024/03/Africas-Rising-Investment-Tide-2024.pdf>.

¹⁰Ibid.

¹¹ African Union, May 6, 2024, [Unlocking the potential of Africa's soils for a food secure continent | African Union](#).

¹²September 2024, Forbes, Tapping Into Opportunity: Why Africa's \$30 Billion Water Crisis Demands Strategic Investments, forbesafrica.com/current-affairs/2025/09/15/tapping-into-opportunity-why-africas-30-billion-water-crisis-demands-strategic-investments.

¹³ World Economic Forum, WEF, Nature and Diversity, March 2023, <https://www.weforum.org/stories/2023/03/global-freshwater-demand-will-exceed-supply-40-by-2030-experts-warn/>.

water resources¹⁴. Africa also faces the challenge of water demand rising rapidly, while many systems are ageing and poorly-maintained. In some countries, up to half of the water is lost before it even reaches consumers. A \$30 billion annual water investment gap, combined with rapid urbanization across sub-Saharan Africa (SSA), highlights the region's urgent need to address the lack of or even overhaul of its underperforming water infrastructure¹⁵. Climate variability threatens the availability and reliability of Africa traditional water sources, limiting access to clean water leading to the spread of waterborne diseases and stymie hygiene efforts.

Solutions may be at hand on the continent. Africa is home to vital natural water towers, including mountains and glaciers that play a key role in water security and climate resilience. However, climate change has significantly threatened Africa's natural water sources – glaciers in the Rwenzori Mountains, Mount Kenya, the Virunga Mountains, and Mount Kilimanjaro are shrinking at an alarming rate and are expected to vanish entirely by 2050, jeopardizing water supplies for millions of people. The urgency with which to protect the remaining natural resources in Africa and to collaborate on securing water resources for future generations has never been greater. Climate change exacerbates water scarcity, disrupting hydrological cycles, altering rainfall patterns, and reducing water availability for crops, livestock, and pasture. This directly threatens food and nutritional security across the continent¹⁶.

Addressing water security challenges requires both practical solutions and strong policy frameworks, including integrated water management plans on river basins and catchments, which are important for optimizing water use. Strong investments in resilient infrastructure ensure reliable access, particularly in regions prone to floods and droughts. Water-saving practices, including rainwater harvesting, are vital to increase water resources. Restoring natural ecosystems, including riverbanks and wetlands, is crucial for safeguarding water sources. Nature-based solutions, such as afforestation and ecosystem restoration, play a vital role in strengthening water resilience and helping landscapes adapt to climate change.

Strong examples on the continent to ensure water security and sanitation in Africa, include the African Development Bank (AfDB) Ten Year strategy (2024-2033), which has placed water security and climate resilience at the center, investing an annual \$2.8 billion.

¹⁴ Solving the water and sanitation crisis: How technology and innovation can help: <https://unctad.org/news/solving-water-and-sanitation-crisis-how-technology-and-innovation-can-help>, March 2023, UNCTAD.

¹⁵ September 2024, Forbes, Tapping Into Opportunity: Why Africa's \$30 Billion Water Crisis Demands Strategic Investments, forbesafrica.com/current-affairs/2025/09/15/tapping-into-opportunity-why-africas-30-billion-water-crisis-demands-strategic-investments.

¹⁶ Article, Preserving Africa's Water Resources 2025, www.afdb.org.

The AfDB hosts and manages the African Water Facility which is critical in ensuring that water sector projects are designed with sustainability and climate resilience in mind. In Kenya, the Bank-funded Kenya Towns Sustainable Water Supply and Sanitation Program has significantly improved access to water supply across 19 towns, while wastewater management services have been expanded in 17 towns, benefitting more than three million people. The program incorporates solar energy to reduce water production and distribution costs. The Othaya Sewerage Wastewater Treatment Project, as part of this initiative, promotes waste reuse for energy and agriculture through the production of cooking briquettes and organic fertilizer¹⁷.

In Ethiopia and South Sudan, the Bank's Climate Proof Water for Food Project is designed to enhance adaptation and resilience for approximately 211,000 people in Ethiopia's Gambella region and South Sudan's Unity State. This initiative includes the construction and rehabilitation of four solar-powered water supply systems and integrated flood management measures to support the transition to climate-smart agriculture¹⁸.

Science, technology, and Innovation (STI) could be leveraged to provide solutions to ensure water security, sanitation, and sustainable development. Frontier technologies such as Artificial Intelligence (AI), big data and Internet of Things help monitor water and sanitation infrastructure and accelerate progress towards SDG 6 on "clean water and sanitation for all". In addition, AI and Big Data systems can also help African states better map the resource and adapt investments to needs including tackling potential competition for resources that often drive conflicts.

Early warning systems that rely on drone technologies or deeply integrated earth observation systems can support disaster threat prediction and mitigation. Smart metering, which provides real-time information and customized feedback, can increase the efficiency of existing water and sanitation systems. These technologies should be scaled up to accelerate progress towards SDG 6.

Global partnerships are crucial not only to support access to STI but also to enhance knowledge-sharing that fosters the scaling up of good practices, domestically and internationally, for water security and sanitation service delivery needed to accelerate progress towards SDG 6.

Against this backdrop of mounting water security, sanitation, and climate challenges across Africa, there is a clear need for coordinated, evidence-based dialogue and action.

¹⁷ African Water Facility, AfDB: <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/african-water-facility>.

¹⁸ Ibid.

In this context, the United Nations Office of the Special Adviser on Africa (UNOSAA), in collaboration with the African Capacity Building Foundation (ACBF), is convening a webinar titled “Innovative Science and Technology Solutions for Water Security and Sanitation in Africa”. The webinar provides a platform for policymakers, researchers, development practitioners, and partners to examine scalable STI solutions, share best practices, and explore enabling policy and financing frameworks that can strengthen water security and sanitation service delivery across the continent.

Objectives of this Webinar:

The main objective of the webinar is to strengthen evidence-informed water and sanitation policymaking in Africa by showcasing scalable science and technology solutions and identifying enabling policy, regulatory, and financing frameworks to support their adoption and scale-up.

A strategic asset management approach is incorporated into policy intentions and strategic communications by African member states in the field of water and sanitation with a focus on achieving SDG 6 and the related goals and aspirations of Agenda 2063. Such an approach would improve the efficiency and effectiveness of current international/regional strategies and frameworks for delivery on the ground and ensure that clean water and sanitation act as fundamental enablers of Africa’s sustainable development and durable peace.

The specific objectives are:

1. Partnerships and Coalition building: To contribute to a dynamic policy environment focused on scaling up Innovative Science and Technology Solutions for water security and sanitation service delivery in Africa for sustainable development and create effective partnerships for policy recommendation implementation.
2. Advocacy and Awareness raising: To raise the awareness of African policymakers and the United Nations System on the importance of evidence based STI Policies, innovative solutions, and climate action for water security, sanitation, and resilience.
3. Policy influence: To support the implementation of concrete, evidence-based or science-based STI and Innovative solutions for Water Security and Sanitation in Africa.
4. Youth and women inclusion: To ensure that youth and women are at the forefront of scaling innovative Science and Technology Solutions for Water Security and Sanitation in Africa as well as amplify youth voices and promote gender equality with a strong emphasis on intergenerational equity and youth leadership for WASH transformation in Africa.

UN OSAA, in close collaboration with relevant partners as well as members of the African Knowledge Network and Think Tank Network, will continue raising regional and global awareness of the importance of STI and provide practical and scalable policy recommendations to ensure water security and sanitation in Africa.

Proposed guiding questions

1. How can African countries design and implement enabling policy, regulatory, and institutional frameworks that effectively scale up innovative science and technology solutions—including digital, nature-based, and climate-resilient approaches—to strengthen water security and sanitation service delivery in support of sustainable development?
2. How can evidence-based science, technology, and innovation policies be leveraged by African policymakers and the United Nations system to drive climate-resilient water and sanitation systems that protect ecosystems, enhance disaster preparedness, and advance gender equality and social inclusion?
3. How does improved water resources management foster improved resilience critical to deliver Africa's structural economic transformation via the availability of water resources and sanitation, food production and energy?
4. What practical, scalable, and locally appropriate science- and technology-driven solutions can be implemented—through effective partnerships, financing mechanisms, and capacity building—to deliver sustainable, inclusive, and resilient water security and sanitation services across Africa?

Expected Outcomes

1. A substantive contribution to support African Countries to leverage STI for Water Security and Sanitation service delivery in Africa for sustainable development.
2. Strengthened dialogue and partnerships among African policymakers, the private sector, and other development partners to support the implementation of adequate strategies and policy frameworks to achieve Water Security and Sanitation service delivery in Africa for sustainable development.
3. Enhanced participation of the youth demography and women in finding lasting solutions to water security for future generations, as well as encourage African-grown solutions to climate change.

Key Output

A report on the event and a policy brief with key, actionable, scalable policy recommendations for Innovative Solutions for Water Security and Sanitation in Africa will

be produced and disseminated to participants, the private sector, policymakers, and stakeholders.

Format and participation

The event will last two hours and be hosted virtually via Teams. It will be open to all participants, including government officials from all UN Member States, representatives of African regional institutions, the UN system, bilateral and multilateral partners, representatives of women and youth groups, civil society, the private sector, academia, and the media. There will be simultaneous English/French interpretation.

Co-organizers

The event is co-organized by the UN Office of the Special Adviser on Africa (UN-OSAA), the African Capacity Building Foundation (ACBF), the UN-OSAA Think Tank Network - African Technology Policy Studies Network (ATPS); Advocates Coalition for Development and Environment (ACODE); and Cellule d'Analyse de Politiques Economiques du Cires (CAPEC).