

FIRST CALL FOR ABSTRACTS

# 24<sup>th</sup>

## WaterNet/WARFSA/GWP-SA Symposium on

*Accelerating Change: Fostering Innovation  
and Integration for Sustainable Water Resources  
Management in Eastern and Southern Africa*

A Blended Event to be held virtually and at the  
Hotel Verde Zanzibar  
Azum Resort and Spar  
Zanzibar  
The United Republic of Tanzania

**25<sup>th</sup> – 27<sup>th</sup> October 2023**

**Jointly convened with:**

International Association of Hydrological Sciences (IAHS), and the Local  
Organizing Committee led by the University of Dar es Salaam, Tanzania

*With support from the Government of the  
United Republic of Tanzania*

## Background

The 24<sup>th</sup> WaterNet/WARFSA/GWP-SA Symposium will be held in Zanzibar, United Republic of Tanzania at the Verde Hotel Resort, 25–27 October 2023 under the theme **Accelerating Change: Fostering Innovation and Integration for Sustainable Water Resources Management in East and Southern Africa**. The 24<sup>th</sup> Symposium will be hosted by the University of Dar es Salaam in collaboration with other partners.

The Symposia have been held annually in the Eastern and Southern African regions for the past 23 years to promote interaction among policymakers, academics, practitioners from water and related sectors, and cooperating partners. Together, they identify regional issues, gaps and priorities that require further research and support. Great emphasis has been placed on integration of knowledge, particularly involving scholars from the natural and social sciences.

This year's symposium sub-themes have been aligned to the achievement of Sustainable Development Goals (SDGs) and themes of the World Water Day 2023 and the SADC Water Research Agenda under the Regional Strategic Action Plan (RSAP) on Integrated Water Resources Development and Management Phase V, whose main objective is:

- Promoting evidence-based implementation of SADC water programmes and projects through multi- and inter-disciplinary research, and synthesis of existing and new information, which will lead to a realization of SADC developmental goals.

## Sub themes

Policymakers, academics, practitioners from water and related sectors, and cooperating partners are invited to register for and attend the symposium and make use of this opportunity to listen and debate findings from presentations focused on the different sub-themes. Authors wishing to present the results of their work should submit their abstracts targeting the topics (sub-themes) detailed below.

## Innovative Approaches, Practices and Technologies for Affordable Water Supply and Sanitation Services

Sustainable Development Goal (SDG 6) aims to “Ensure availability and sustainable management of water and sanitation for all by 2030”. The lack of adequate access to safe drinking water and basic sanitation is a global issue that is particularly severe in Africa, especially in Eastern and Southern Africa. The demand for safe drinking water and wastewater generation is rising quickly due to rapid urbanization, population increase, and economic development. Africa is urbanizing rapidly – its population is expected to be up to 1.3 billion by 2050. The percentage of people who lack access to clean drinking water is estimated to be 40% in Sub-Saharan Africa and approximately the same population in Eastern and Southern Africa. Regarding accessibility to improved sanitation, Africa lags behind other continents. Almost 70% do without basic sanitation. Furthermore, inadequate access to WASH services has many health consequences; it contributes to the burden of diarrheal diseases that cause child mortality globally. Due to limited access to clean water supply and sanitation in Sub-Saharan Africa, 842 000 adults and 120,000 children under five, die yearly from diarrhoea caused by unsafe water and poor sanitation. Cholera outbreaks have been experienced in the SADC region in recent years. The health of members of society is highly dependent on both the quality and the availability of water and on how well this precious resource is managed.

With regard to wastewater and wastewater treatment, the generation of wastewater is increasing rapidly, especially in the global south. It has been estimated that 80% of the wastewater generated globally, with 90% in the global south, is directly discharged into the



environment without being treated or reused. Rapid population growth in Africa has resulted in a rise in water consumption, an increase in wastewater generation, and an increase in discharge. This phenomenon increases the demand for providing basic services, including wastewater management. Yet, treatment and disposal of this wastewater have not kept pace with this increased demand. Untreated wastewater pollutes surface

and groundwater and may lead to many diseases and illnesses, resulting in the deaths of the young, the elderly and vulnerable people. Africa treats only 1% of wastewater to a secondary level. Given the urgency to accelerate the achievement of SDG target 6.3, which aims at “halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally” by 2030, context-specific wastewater treatment systems are urgently needed considering wastewater as a useful resource which can be recovered and used for productive purposes. In addition, solid waste is not collected systematically or using proper disposal methods and poses a health hazard to residents and the environment. New and innovative approaches are required in wastewater management to alleviate these challenges. To achieve a number of sustainable development goals such as poverty eradication and hunger (goals 1 and 2), good health and wellbeing (goal 3), quality education (goal 4), gender equality (goal 5), clean water and sanitation (goal 6), clean and affordable energy (goal 7) reducing inequality (goal 10) and sustainable cities and communities (goal 11), life below water (goal 14), life on land (goal 15), there is a need to come up with innovative approaches, practices and technologies in order to achieve adequate water supply and sanitation services for all. The challenge is to identify affordable technologies that are appropriate and accepted by the intended beneficiaries across Eastern and Southern African regions. The available innovative technologies include Internet of Things (IoT) and Self-Monitoring, Assessment and Reporting Technology (SMART), which can provide innovative solutions for real-time monitoring and controlling of system operations and management.

Papers in this sub-theme should address sustainable water supply and sanitation development, technological advances in water supply, reuse and recycling, sanitation, water utility management and linkages to public health.

### **Water governance for sustainable, equitable and affordable water services**

Multiple water challenges have emerged in the twenty-first century, necessitating a significant shift in the way water resources are managed. A number of factors such as climatic and hydrological conditions, population growth, rural-to-urban migration, urban-to-rural migration, increased per-capita water use, pollution, and over-abstraction of groundwater, are contributing to the current water crisis that has posed a challenge for efficient and effective water governance in Africa in general and in Eastern and Southern Africa in particular. The global water crisis has, thus, been defined as a governance crisis, i.e., the failure of water institutions to manage the resource for the well-being of humans and ecosystems. This calls for reforms in both policies and legal frameworks in the region.

Countries in the Eastern and Southern Africa regions are at various stages in the process of putting in place policies and legal frameworks that promote integrated water resources management. While some nations began the process of implementing legal water reforms supported by IWRM provisions more than 20 years ago, others began the process later, and still others have not yet reformed their water sectors. These



various stages call for a more in-depth investigation into the ways in which the policies and legal frameworks of nations that have been actively implementing water reforms related to IWRM have influenced the management of sustainable water resources in comparison to nations that have not yet begun the process of reforming their water sectors. In this context, the question that needs to be answered concerns reforms that are related to IWRM as well as sustainable management of water resources.

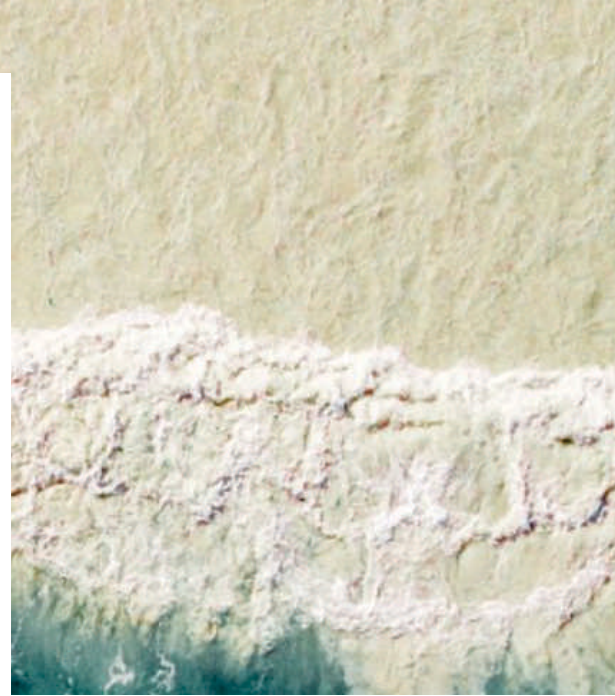
The Southern African Development Community (SADC) region has made significant progress in the area of transboundary water governance as a result of the implementation of the Revised Protocol on Shared Watercourses, as well as a number of transboundary water agreements, which have led to the establishment of commissions such as those for the Zambezi, Limpopo, Orange Senqu, Okavango and Cunene basins. It is of the utmost importance to conduct research into the degree to which these River Basin Organizations are improving the management of shared watercourses and the manner in which they are carrying out the various provisions of the agreements that they have made. It is necessary to identify and discuss the challenges that they are currently facing. These challenges include the strengthening of institutions, the creation of services that add value to stakeholders in riparian states, and the establishment of sustainable financing for their programs in order to reduce their dependence on donor financing.

The goal of effective water governance is to make it easier for people to exercise their fundamental human rights to water and sanitation. This highlights the principle that all people have the right to safe drinking water, sanitation, shelter, and the basic services that go along with those needs. The human right to water is an essential component of a life that is lived with human dignity. This right is necessary in order for other human rights to be realized; it is a prerequisite. Corruption and a lack of accountability both drain vital financial resources and have emerged as primary causes of the high cost, poor quality, and even total absence of water and sanitation services. They violate these human rights in this and other ways, and they contribute to the underachievement that we are seeing with respect to the sustainable development goals.

This sub-theme invites abstracts that address issues concerning appropriate water governance arrangements at different levels (regional, national, and local), stakeholder participation in water management at various scales, and legal and policy frameworks for water management as well as their efficiency and the models used for the delivery of water services, as well as differentiated pricing, subsidization, and incentives, as well as the human right to water.

### **Water, Land, Energy and Agriculture**

Agriculture consumes most of the freshwater resources in the world, while food production and distribution consume more than a quarter of the world's energy. Agriculture is a land-based industry by nature, and there is competition for available land to grow food and live on. Thus, water, energy, and land are critical resources for sustaining life and livelihoods. Population growth, rapid urbanization, dietary alterations, and economic development are all factors contributing to an increasing demand for water, energy, and land, all of which compete with agriculture. The links between the three resources form a nexus that need more research.



Feeding a worldwide population of 9 billion people by 2050 will necessitate a 60% increase in food production. As a result, enhanced land tenure, management, development, and conservation are required to boost agricultural production, sustainable land use, and water resources. In most regions, meeting the need for agricultural goods while minimizing the demand for and conserving the quality of land and water is a serious challenge. Across the SADC region, the share of irrigated land as a fraction of total arable land is low. Agriculture's water and energy demands are expected to rise. Better techniques of accounting for and utilizing biophysical resources are necessary. However, the assessment is based on fundamental procedures that urgently require modification. The assessment of biophysical resources must involve the calculation of irrigation potential vs. arable land, the applicability of agricultural performance measures (water use efficiency, water productivity), and water usage by diverse land uses (such as forestry and biofuel feedstock).

Energy access is critical for poverty reduction and economic growth promotion. Agricultural development and the expansion of urban water systems both necessitate access to abundant, dependable, and affordable energy sources. Renewable energy applications have the ability to ameliorate many of the difficulties that Africans confront on a daily basis, especially if done in a sustainable manner that respects human rights. However, in Eastern and Southern Africa, the usage of renewable energy for irrigation is still quite low.

The abstracts under this sub-theme should emphasize the interaction of land, water, and energy as an important nexus that must be fully defined, particularly the use of solar energy, rain-fed vs. irrigated production, water harvesting technologies, and other best practices to reduce pressure on the strained water resource systems. How can water, land, and energy be managed together in a way which considers the fact that there is less water than there used to be, that water is largely utilized for agriculture, and that water must be cleaned and pumped, which requires energy, including renewable energy?

### **Changing hydro-climatic regimes and planning tools for climate resilient development pathways**

Climate change and its impact on water resources has brought serious concerns across the globe. Since 20th century, there is an overall increase in surface temperature by about 1°C with some local areas experiencing an increase of up to 3°C minimum temperature while rainfall trends indicated varying inconsistencies in both spatial and temporal scales. Changes in a rainfall patterns and intensity as well as gradual increase in temperature has caused changes on hydrological processes. Areas such as the Eastern and Southern African regions are the most vulnerable to climatic changes due to their low adaptive capability, high reliance on natural resources and underdeveloped agricultural production systems. These regions already experience floods, droughts and diseases causing fatalities, significant relocation of population and economic losses.

It is projected by 2050, that climate change will significantly impact macroeconomy of Eastern and Southern African countries, with a loss of 5–15% of GDP. Since the effects of climate change on water resources are not well known and varies from one region to another, it necessitates

research to be done at local scales. Given the current hydro-climatic changes taking place, there is a need for efficient and effective water management based on an accurate assessment of the available water resources. This theme focuses on how best to utilize existing data and how newer technologies, such as remote sensing, local knowledge systems, and big data, can improve assessment of both surface and groundwater, including transboundary water resources. This has a pivotal role in contributing to the global



agenda of sustainable development. By working together, we embrace and strengthen partnerships and adoption of multidisciplinary approaches for sustainable solutions in the water-climate space.

The abstracts in this sub-theme should therefore focus on addressing issues related to enhancing efficient and effective assessment of water resources, planning and management of surface and groundwater resources, and the impact of climate change on water resources and agricultural production using appropriate models or tools.

### **Water, Ecosystems and the Environment**

The environment and ecosystems, such as forests, marshes, and grasslands, are essential parts of the global water cycle. The continuous health of ecosystems and the broader environment are ultimately what all freshwater depends on, and realizing the water cycle as a biophysical process is crucial to accomplishing sustainable water management. Inland and coastal water environments have highly diversified biodiversity, which is also very significant to regional lifestyles and economy.

However, the conservation of this diversity is not always taken into consideration during development activities, and it is inadequately reflected during the planning stage. The good news is that there are lots of choices for conserving the freshwater ecosystem and environment, but they must be taken right away.

Greater investments are now widely acknowledged as being necessary to safeguard aquatic ecosystems and the environment from the damaging effects of human development in all of Eastern and Southern Africa taking into consideration the “blue economy” sector. The potential of the oceans to meet sustainable development needs is enormous; but only if they can be maintained in and/or restored to a healthy, and productive state. But ongoing trends of exploitation and degradation of marine and coastal ecosystems show that endeavors to date have been insufficient and that more needs to be and must be done to improve human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

On the other side, the polluter pays principle is either not implemented at all or is done so extremely slowly. Decision-makers are given the ability to engage large productive water users with the clear end objective of sustainability when ecological demands are integrated into water management procedures. This also applies to the concept of “blue economy” which forms an integral part of the region. In light of global issues like urbanization and climate change, it becomes less subjective to address the challenge of finding the right balance between allocating water for direct human use (agriculture, power generation, domestic purposes, and industry) and indirect use (sustenance of ecosystem goods and services). Increased knowledge of the connections between the various water sources and users necessitates acknowledging the existence of ecosystem borders at the national and transnational levels in addition to hydrologic boundaries.

The abstracts in this sub-theme should discuss novel approaches and best practices in environmental impact assessment, valuation of ecosystem goods and services, establishing ecosystem boundaries, including ecosystem goods and services in the development of water resources, pollution prevention and treatment, river basin management, wise use of water-linked ecosystems and people's livelihoods, sustainable use of blue resources for economic development and other topics.



## Abstracts

Authors are invited to submit their abstracts for presentation at the symposium for oral, poster or special session presentations. Abstracts should be:

- A maximum of 350 words (Do not exceed the number of words as the system will not accept more than 350 words).
- The format for all text should be font size 12, Times New Roman and single-spaced.
- The title should be no more than 16 words in title case.
- Author's names should be written in such a way that the initials appear first followed by the last name.
- The authors names should indicate one corresponding author\* (with an asterisk) and the email of the corresponding author.
- The affiliations of authors should be shown through letter superscripts (such as a, b, c).
- Five keywords should be included in alphabetical order.
- The abstract should include a clear statement of the theoretical issue to be addressed, the research methodology to be presented, and a concise summary of the findings and conclusion.
- Work must be unpublished at time of presentation.
- Maximum of 3 submissions per author, either as single author or joint co-author are allowed.



## Submission of Abstracts and Papers

All abstracts will be handled and reviewed electronically via the conference's EasyChair submission

<https://easychair.org/conferences/?conf=24wnsymp>

Note that you will need to set up an EasyChair account (if you do not already have one) before you login for your submission. Several roles have been set on the platform for the 24th WaterNet/WAFSA/GWP Symposium, kindly register as an author, all other roles will be done through invitation. When completing the submission form on EasyChair, you will see a space which asks for an abstract to be typed in or pasted. Kindly copy and paste your abstract here. Further down the page you will upload your full abstract as a pdf attachment. You should receive confirmation of submission of your abstract from EasyChair immediately after

submission by email; if you have not, please bear in mind that any emails received might be found in your spam folder.

The submission form in EasyChair also asks you:

- Your theme, your preferred presentation type/paper or a poster (note that the final decision will be taken by the programme committee).
- Whether you are under 35 years old.
- Any keywords that do not appear in the topics list that may facilitate the review process

## Selection Criteria

All abstracts submitted for oral/poster presentation will undergo a peer review process and the results will be communicated to the corresponding author. By accepting an invitation to present a paper, the author or at least one co-author commits to attending the conference.

## Elservier Journal of Physics and Chemistry of the Earth (JPCE)

After the symposium authors will have an opportunity to submit their papers for review and publication in a special edition of the Journal of Physics and Chemistry of the Earth. It is a journal published by the Elsevier and the normal peer review process will apply. Guidelines for submitting a paper to this journal are available at <http://www.elsevier.com/journals/physics-and-chemistry-of-the-earth/1474-7065/guide-for-authors>

Submissions will be via online. More details on submission will be announced at the symposium.

## Special Sessions

All organizations interested in convening special sessions should submit their proposals on the digital platform as well. Please note that you will be required to show the relevance of the workshop to the symposium and the expected number of participants. The proposals need to be motivating, and will be allocated on a first come/first served basis. Each special session will be allocated approximately two hours. However, if more time is required the organizers should state this in the proposal. The proposal should state the materials and equipment that will be required.

**PLEASE NOTE:** Abstracts for special sessions should adhere to the deadlines and will be peer reviewed like all others.



## Important Dates and Registration Fees

### Deadlines

Deadline for submission of abstracts	31 May 2023
Notification acceptance of abstracts	30 June 2023
Deadline for early bird registration	31 July 2023

## Registration fees for physical attendance

<b>Early bird registration for international delegates</b>	<b>USD 400.00</b>
<b>Early bird registration for Tanzanian delegates</b>	<b>TZS 800,000.00</b>

*Payable by 31 July 2023*

<b>Normal registration for international delegates</b>	<b>USD 450.00</b>
<b>Normal registration for Tanzanian delegates</b>	<b>TZS 900,000.00</b>

*Payable by 30 September 2023*

<b>Late registration for international delegates</b>	<b>USD 500.00</b>
<b>Late registration for Tanzanian delegates</b>	<b>TZS 1,000,000.00</b>

*Payable after 30 September 2023*

<b>Early bird International student Registration</b>	<b>USD 300.00</b>
<b>Early bird-Tanzania based student Registration</b>	<b>TZS 500,000.00</b>

*(Proof of studentship to be provided)*

*Payable by 31 July*

<b>Normal registration for international student delegates</b>	<b>USD 350.00</b>
<b>Normal registration for Tanzanian based student delegates</b>	<b>TZS 600,000.00</b>

*Payable after 30 September 2023*

## Registration fees for virtual participants

<b>Early bird registration for international delegates</b>	<b>USD 50.00</b>
<b>Early bird registration for Tanzanian delegates</b>	<b>TZS 80,000.00</b>

*Payable by 31 July 2023*

<b>Normal virtual registration for international delegates</b>	<b>USD 100.00</b>
<b>Normal virtual registration for Tanzanian delegates</b>	<b>TZS 150,000.00</b>

*Payable after 30 September 2023*

<b>Late virtual registration for international delegates</b>	<b>USD 100.00</b>
<b>Late virtual registration for Tanzanian delegates</b>	<b>TZS 150,000.00</b>

*Payable by 30 September 2023*

## Exhibitions

<b>International organizations/company</b>	<b>USD 800.00</b>
<b>Local organization/company</b>	<b>TZS 1,500,000.00</b>

*Payable by 30 September 2023*

## Special Sessions

<b>International organizations/company</b>	<b>USD 800.00</b>
<b>Local organization/company</b>	<b>TZS 1,500,000.00</b>

*Payable by 30 September 2023*

## Payment details for International Participants

<b>Bank Name:</b>	Stanbic Bank Botswana Limited
<b>Branch:</b>	Fairgrounds
<b>Branch Code:</b>	064967
<b>Account Name:</b>	WaterNet Trust
<b>Account Number:</b>	9060002591915
<b>Swift Code:</b>	SBICBWGX
<b>Account Type:</b>	USD
<b>Bank Postal Address:</b>	Stanbic House, Plot 50672, Old Machel Drive Fairgrounds, Gaborone, Botswana
<b>Reference to be used:</b>	Symposium, Initials, Surname (e.g. Symposium_J Kabila)

## Payment details for local (Tanzanian) Participants

**Bank Name:** CRDB BANK PLC  
**Branch:** UDSM  
**Branch Code:** 3386  
**Account Name:** University of Dar es Salaam  
**Account Number:** 0150329567500  
**Currency:** TZS  
**Swift Code:** CORUTZT  
**Account Type:** Current Account  
**Bank Postal Address:** 268 – Azikiwe Street, Dar es Salaam  
**Reference to be used:** Symposium, Initials, Surname (e.g. Symposium D. Kidawa)

Kindly generate an invoice [HERE](#).

## Requests for customised invoices

- International participants request invoices on [symposium@waternetonline.org](mailto:symposium@waternetonline.org)
- Local participants request invoices on [udsm2023@waternetonline.org](mailto:udsm2023@waternetonline.org)

## Proof of payments

Please send proof of payment to: [symposium@waternetonline.org](mailto:symposium@waternetonline.org);  
[udsm2023@waternetonline.org](mailto:udsm2023@waternetonline.org)

It is VERY IMPORTANT to indicate delegate's name on Bank Transfers to facilitate processing of registration.

## Registration

Online registration can be done [HERE](#)

## For further information:

More information on the Symposium is available [HERE](#)

For requests for invitation letters, contact: [udsm2023@waternetonline.org](mailto:udsm2023@waternetonline.org)

## Travel and Accommodation

All delegates attending the symposium should secure accommodation early. Travel arrangements will also need to be done on time. More information on accommodation and travel is contained in the Tanzania brief which can be found [HERE](#)

