SECOND CALL FOR ABSTRACTS

25th WaterNet/WARFSA/GWP-SA Symposium on

Enhancing Sustainability: Upscaling Innovations and best Practices for Integrated Catchment and Water Resources Management (ICWRM) in Eastern and Southern Africa – LEAVING NO ONE BEHIND

Jointly convened with:

International Association of Hydrological Sciences (IAHS), Water Research Commission, AU/NEPAD Southern African Network of Water Centres of Excellence (AU/NEPAD SANWATCE), ReNOKA and the Local Organizing Committee led by the National University of Lesotho

With support from the Government of Lesotho

A Blended Event to be held virtually and at the
Avani Maseru Hotel, Maseru, Lesotho

30th October to
1st November 2024

BACKGROUND

The 25th WaterNet/WARFSA/GWP-SA Symposium will be held in Maseru, The Mountain Kingdom of Lesotho at Avani Maseru Hotel, 30th October – 1st November 2024 under the theme **Enhancing Sustainability: Upscaling Innovations and Best Practices for Integrated Catchment And Water Resources Management (ICWRM) in Eastern and Southern Africa – Leaving No One Behind**. The 25th Symposium will be hosted by the National University of Lesotho in collaboration with other partners.

The Symposia have been held annually in the Eastern and Southern African regions for the past 24 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 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 with accepted papers should now submit their full papers targeting the sub-themes 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"*. 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. Demand for safe drinking water and wastewater generation is rising quickly due to rapid urbanization, population increase, and economic development. Africa is urbanizing rapidly due to population growth – its population is expected to be up to 1.3 billion by 2050. Percentage of people who lack access to clean drinking water is estimated to be 40% in Sub-Saharan Africa including in the Eastern and Southern Africa. Regarding accessibility to improved sanitation, Africa lags behind other continents in access to safe drinking water and basic sanitation. Almost 70% of populations do without basic sanitation. Furthermore, inadequate access to water, sanitation and hygiene (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 diarrhea 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 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, leading to increased wastewater generation and 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, therefore, 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 secondary level. Given

the urgency to accelerate the achievement of SDG target 6.3, which aims at *"decreasing the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally"* by 2030, context-specific wastewater treatment systems are urgently needed considering waste water as a useful resource which can be recovered and used for productive purposes. In addition, solid waste is not collected systematically and disposed not using proper disposal methods, thereby, posing a health hazard to residents and the environment. New and innovative approaches are required in wastewater management to alleviate these challenges.

In order to achieve a number of sustainable development goals such as eradication of poverty 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

Water is at the core of sustainable development and is critical for socio-economic development, healthy ecosystems and human survival. It is vital for reducing the global burden of disease and improving the health, welfare and productivity of populations. However, the world is currently bedeviled by a freshwater crisis which ranges from scarcity to plenty (due to flooding) during some years in Sub-Sahara Africa in general and eastern and southern Africa in particular. More than 1.7 billion people currently reside in river basins where depletion through use exceeds natural recharge, a trend that will see two-thirds of the world's population living in water-stressed countries by 2025. All this negatively impacts on socio-economic development, healthy ecosystems and human survival. Factors behind the global water crisis include changing climatic conditions, deforestation, over abstraction of groundwater resources, rapid population growth, pollution of freshwater resources and ineffective and inefficient water and natural resources governance approaches. The planet's endowment of water is expected to remain constant, human appropriation of water, already at 50% by some measures, is expected to increase further.

In the midst of the above challenges, good and appropriate water governance is seen as a panacea to the current global water challenges as this is a critical factor for adequate and sustained progress towards achieving Sustainable Development Goal (SDG) 6. Good water governance is enhanced by the adoption and implementation of particular approaches and frameworks. Countries in the Eastern and Southern Africa regions have mainly adopted integrated water resources management (IWRM) as a governance approach. However, there are other approaches which are gaining prominence in these regions, such as integrated catchment management (ICM) and the water-energy-food (WEF) nexus approach.

Integrated catchment management uses the catchment as an entry point in the holistic and complex management of natural resources and how human society relates to these. Countries like Lesotho have adopted ICM as the dominant management approach of natural resources. The water-energy-food (WEF) nexus has emerged as an increasingly prominent global policy, governance and research agenda. Conceptually, the WEF

nexus means that water security, energy security and food security are inextricably linked and, more importantly, actions in any one sector will impact in one or both of the others. The approach has been accepted at SADC level and individual countries within the region are in the process of operationalizing it. .

This sub-theme invites papers that address the following:

- **Appropriate water governance arrangements at different levels (regional, national, transboundary and local);**
- **The adoption of different water governance frameworks including their implementation and operationalization;**
- **The role of artificial intelligence and machine learning in water governance;**
- **Stakeholder participation in water governance at various scales;**
- **Legal and policy frameworks for water management as well as their efficiency;**
- **Models used for the delivery of water services, as well as differentiated pricing, subsidization, and incentives, as well as the human right to water.**

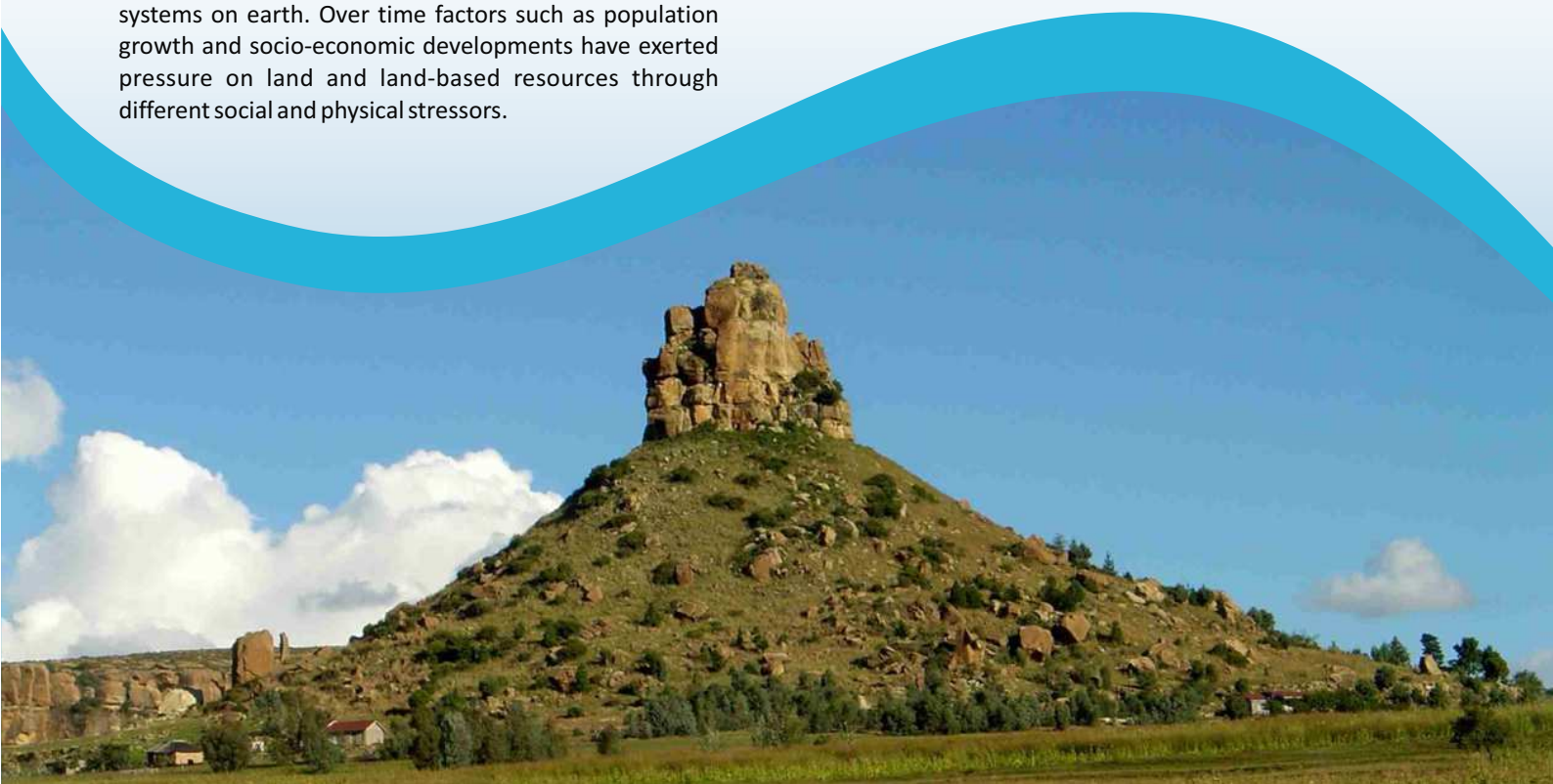
Water, Land, Energy and Agriculture Nexus

Land, which is defined as the terrestrial bio-productive system that comprises soil, biota, vegetation and other interwoven natural processes (ecological and hydrological) operating as a system, is the anchor of life systems. The land or soil is the bank of life, and the foundational life support system for plants, animals, and human beings, which renders it fundamental to life on the planet earth. Land resources support ecosystem function and services. It is upon the land where natural and socio-economic systems function together to support and sustain life. Thus, land degradation and any threats to the quality of land and land systems due to changing land use and cover dynamics is the direct threat to existence of life systems on earth. Over time factors such as population growth and socio-economic developments have exerted pressure on land and land-based resources through different social and physical stressors.

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 these three resources form a nexus that requires research in order for it to be well understood.

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 papers 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 agriculture 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? The sub-theme also entails the management of land and water to manage or reduce soil erosion.

Changing Hydro-Climate Regimes and Planning Tools for Climate Resilient Development Pathways

Climate change has caused significant shifts in hydro-climatic patterns worldwide, manifesting in the form of global increase in temperature, inconsistent rainfall and affecting hydrological processes. These changes have far-reaching consequences for water resources, agriculture, infrastructure, and overall development. The eastern and southern African regions, with limited adaptive capacity, reliance on the available natural resources, and underdeveloped agriculture, are particularly vulnerable.

To ensure sustainable future, it is crucial to understanding climate variability and change impact on hydrological regimes, surface and ground water resources, and adopts robust planning tools for climate-resilient development. Climate change is projected to have a substantial macroeconomic impact on Eastern and Southern African countries, potentially resulting in a 5-15% loss of GDP by 2050. Moreover, integrated catchment management (ICM) utilizes mechanisms such as natural flood management, sustainable drainage systems, land use planning, flood forecasting and warning systems, and community engagement, to address the threat of floods. Despite limited investigations, these approaches aim to reduce flood risk, enhance resilience, and promote sustainable development practices. Therefore, understanding the specific effects of climate change on water resources, employing innovative technologies such as remote sensing, machine learning and big data, and utilizing existing data are vital for assessing surface, groundwater, floods, and droughts, including transboundary water resources.

Integrating hydro-climate risk assessments into development planning is essential in building climate change resilience. These assessments should consider future climate scenarios and evaluate the vulnerability of infrastructure, communities, and ecosystems. By implementing climate adaptation strategies such as sustainable water management practices, climate-smart agriculture techniques, and resilient infrastructure design, societies can build resilience against changing hydro-climatic conditions.

This sub-theme invites abstracts which focus on:

- **Understanding and addressing the challenges posed by changing hydro-climatic conditions.**
- **The impacts of climate change on hydrological processes including groundwater.**
- **Innovative and integrated water management and planning tools.**
- **Implementation of adaptive strategies, good governance, and harnessing technology to navigate these challenges and create a sustainable and resilient future.**

Water, Ecosystems and the Environment

The environment and specialist ecosystems such as forests, marshes, grasslands and wetlands are essential parts of the global water cycle. They not only act as water capture areas for aiding groundwater recharge, but they

also reduce the rates of land degradation while promoting the proliferation of water resources. The continuous health of ecosystems and the broader environment is therefore key for sustainable freshwater resources. Freshwater ecosystems are, however, facing challenges such as sedimentation, degraded water quality, channelization of rivers, removal of riparian vegetation, and the introduction of, and encroachment by exotic species. These are further exacerbated by climate change, urbanisation, the expansion and intensification of agriculture.

These challenges confronting the aquatic ecosystems and the environment call for interdisciplinary initiatives to deliver proven solutions. For sustainability, such solutions have to be supported by: technological innovation in securing and augmenting water resources; scientific innovation in understanding health and ecosystem impacts of contaminants that find their way into our waters; financial innovation in sustainably managing available water supplies and accounting for resource use; social innovation in bringing water and sanitation to those without them while also promoting proper use; and policy innovation to address threats such as climate change, population increase and land use change. Thus, it is necessary to engage every stakeholder in developing interdisciplinary and balanced approaches that deliver sustainable solutions.

The abstracts in this sub-theme should discuss:

- Innovative and best practices in environmental impact assessment.
- The value and potential of the ecosystem services approach for improved decision making with an emphasis on integrative catchment planning.
- Valuation of ecosystem goods and services.
- The tools available to assess ecosystem goods and services and how to select the best tools for different contexts.
- Engagement of stakeholders for input and feedback in ecosystem service assessment.
- Plant–water relations and influence on the water cycle and the ecosystems in general.
- Ecosystem goods and services in the development of water resources.
- Integrated catchment management.
- Pollution prevention and treatment.
- Wise use of water-linked ecosystems and people's livelihoods.
- Sustainable use of blue resources for economic development and other related topics.

PAPERS

Submission of full papers

All authors whose papers were accepted for presentation at the symposium for oral, poster or special session are being invited to submit full papers which will be included in the symposium proceedings. The full papers will be submitted and handled via the conference's EasyChair platform,

https://easychair.org/conferences/?conf=25wnsymp

Authors use the same accounts used for submitting papers. You submit your full paper by updating your abstract where it says Paper: Upload Paper in PDF format.

You should receive confirmation by email of submission of your paper from EasyChair immediately after submission; if you have not, please bear in mind that any emails received might be found in your spam folder.

Format for full papers:

- 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 on the full paper 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/conclusion.
- Work must be unpublished at time of presentation.
- Maximum of 3 submissions per author, either as single author or joint co-author.

Elsevier Journal of Physics and Chemistry of the Earth (JPCE) and Proceedings of International Association of Hydrological Sciences (PIAHS)

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:

http://www.elsevier.com/journals/physics-and-chemistry-of-the-earth/1474-7065/ guide-for-authors

Authors will have also an opportunity to publish under the PIAHS (Proceedings of the International Association of Hydrological Sciences), a 6-page summary of the work presented during the Symposium. More details can be accessed at

https://www.proceedings-iahs.net/

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

SPECIAL SESSIONS

Strategic Youth Engagement:
Developing African Water Sector Cases for Youth Challenges/Hackathons

Conveners

Water Research Commission, WaterNet, Department of Water and Sanitation – Republic of South Africa and Wetskills Foundation

According to the UN World Water Development Report 2024, none of the Sustainable Development Goal (SDG) six's targets appear to be on track, and so is the continental and regional development agendas and commitments towards access to clean drinking water and sanitation. As of 2022, 2.2 billion people were without access to safely managed drinking water while the situation with respect to safely managed sanitation remains dire, with 3.5 billion people lacking access to such services. Cities and municipalities have been unable to keep up with the accelerating growth of their urban populations. However, there is still hope as regions and countries can improve their achievement of the development agendas through improved policies, inclusiveness, action oriented and strategic partnerships.

The African continent and many other developing countries are still struggling with water security, and building the sector and community resilience and adaptation. Community livelihoods are severely affected by the lack of access to sustainable clean drinking water and safe sanitation especially in the sub-Saharan Africa. This is even more pertinent as the African population is expected to grow to 1,3 billion people by 2050 and currently has 40% of its population lacking safe drinking water and 70% without access to sanitation. Consequently, water insecurity threatens key economic sectors (energy, health and agriculture) and the inadequate access to water, sanitation, and hygiene (WASH) services results in many water borne diseases and loss of life that could be avoided by improved water and sanitation service delivery. The situation is worsened by the growing population, urbanisation and climate change, and the young people and future generations will be most affected if nothing is done to address the situation. Therefore, young people needs to be the water ambassadors, advocate and hold government and service providers accountable when the human rights are not upheld, and actively contribute towards finding solutions to the pressing water challenges and bring change to their communities.

The Water Research Commission (WRC) of South Africa is committed to supporting the youth and young water professionals by providing them with opportunities to contribute to new knowledge generation and development of innovative solutions to address urgent water challenges experienced by South African and the rest of the African continent. The WRC has, thus, partnered with key partners such as WaterNet and Wetskills Foundation to convene hackathons/challenges affording the youth with opportunities to contribute to finding solutions to specific water challenges, and participates in the Technical University of Denmark (DUT) Skylab challenge.

The aim of the two-day workshop is to involve the youth participating in the 25th WaterNet/WARFSA/GWPSA Symposium to develop water cases that will be used by the WRC and its partners during the hackathons/challenges.

Target Audience: Youth, Young Water Professionals, Policy Makers, Innovators and Entrepreneurs in the water and sanitation sector, Academia, RDI and capacity building funding institutions.

Showcasing CIWA's Male Champion's for Women's Empowerment:

An Initiative to Engage Men as Champions of Gender Equality within the Transboundary Water Context

Convener

Cooperation in International Waters in Africa (CIWA)

The Cooperation in International Waters in Africa (CIWA) is a World Bank Trust Fund that facilitates transboundary cooperation on the management of shared water bodies within sub-Saharan Africa (SSA). As part of its commitment to advancing gender equality and women's empowerment, CIWA has provided support to address challenges women face at the institutional and program level to facilitate equitable and inclusive participation in transboundary water management processes. CIWA recognizes that it is operating in a challenging environment when it comes to promoting gender equality. This is because water is a sector where men dominate as leaders and decision makers.

In recognition of the key role men play as stakeholders, influencers, and decision makers in water institutions and local organizations, CIWA launched the Male Champions for Women's Empowerment (MCWE) to work directly with men to identify ways to apply their influence to overcome gender inequalities and to effect positive change on women's empowerment within the transboundary water context. By working as a collective platform, the MCWE seeks to facilitate actions Male Champions can take to overcome gender inequalities at the continental, regional, national and local level.

The session is being organized to introduce the objectives, approach and merits of CIWA's Male Champions for Women's Empowerment initiative, to facilitate the identification of challenges women face in assuming leadership roles within transboundary water context as well as to examine possible roles that Male Champions can play to address these identified challenges. The session will provide an opportunity for other men interested in becoming a Male Champion to learn more about this initiative.

Session Objectives:

Working together with participants using a participatory approach, the session will:

- Showcase the objectives and approach of the MCWE.
- Identify specific challenges to advancing gender equality and women's empowerment within the transboundary water context in SSA.
- Work with meeting participants to identify appropriate actions that Male Champions can take individually and collectively to address gender inequalities.
- Recruit new Male Champions to become part of MCWE.

Sand Rivers:

Lifelines for Resilient Livelihoods in African Drylands

Conveners

University of Zimbabwe, IHE Delft, Mekelle University, Université Abdou Moumouni and Instituto Superior Politécnico de Gaza

Sand rivers are lifelines for resilient livelihoods of people living in African drylands. However, sand rivers have not received sufficient recognition of their nature-based water storage potential that can help resource-poor rural people to become climate smart, more resilient and perhaps even prosperous.

This session explores the potential of African sand rivers, along three themes:

1. Identifying the capacity and potential of sand rivers in Africa;
2. Promoting farmer-led irrigation development along sand rivers;
3. Fostering sustainable and participatory management of water, sand and the riparian vegetation associated with sand rivers.

The session aims to provide an international multidisciplinary platform to discuss and debate among experts, (young) researchers and practitioners the role of sand rivers as lifelines for resilient livelihoods in Africa.

Objectives:

- To facilitate opportunities for sharing evidence-based practices and stories of change that promote climate adaption and resilience of rural livelihoods in African drylands;
- To identify and share new ideas and strategies for the sustainable and community-based management and use of water in sand river systems;
- To identify and share new initiatives to scale-up the use of water from nature-based storage of sand river systems for resource-poor smallholder farmers.

Mobilizing Local Knowledge in the Climate Service Last Mile:
Dimensions, Roles and Challenges

Conveners

IHE Delft and I - CISK

Climate Services are crucial in empowering citizens, stakeholders and decision-makers in defining resilient pathways to adapt to climate change and act to reduce the impacts of climate related extremes such as droughts, cold spells and heat waves. Scientific progress in sub-seasonal to seasonal forecasts; remote sensing; and decadal and centennial projections, has significantly improved the reliability, accuracy and availability of climate data and information. There are, however, still multiple challenges and barriers that remain to the uptake and effective use of climate services. These include: lack of recognition of social and behavioural factors of users; poorly developed understanding of available adaptation options and strategies, and the intended and unintended feedbacks these may have; difficulties in translating scientific data to a service that is actionable and used; and, the challenge of incorporating the local knowledge and customs of users. Research shows that to increase effectiveness, a human centred approach to co-creating climate services is necessary, recognising that users inform the decisions they take based on multiple knowledges, including their local and traditional knowledges.

This session aims to exchange insights and experiences on the roles and use of local and traditional knowledge in climate services, and how a human-centred co-creation approach to climate services contributes to improving the understanding of the customs, knowledges and needs of users; and the co-design of effective services that recognise local and scientific knowledges.

The session will be developed in three steps, to ensure the active involvement of participants to the session and maximise the take-homes participants gain from the session itself as well as from each other through exchange of experiences and insights.

Step 1: Introduction and two invited presentations to set the context of climate services, co-creation and the multiple dimensions of local knowledge.

Step 2: World-Café to exchange insights and experiences on the use and roles of climate services and climate services co-creation.

Step 3: Playing of a serious game To Farm or not to farm: A game of knowledges that explores the complementary role of local and scientific knowledges in climate related decisions informed by climate services.

Promoting Stakeholder Participation in Upscaling Innovations and Best Practices for Integrated Catchment and Water Resources Management in the Orange-Senqu River Basin

Convener

Orange-Senqu River Commission (ORASECOM)

The Orange-Senqu River Commission (ORASECOM) was established in 2000 by the Governments of four States, namely, Botswana, Lesotho, Namibia, and South Africa, for managing the transboundary water resources of the Orange-Senqu River Basin and promoting its beneficial development for the socio-economic wellbeing and safeguarding of the basin environment. The Orange-Senqu River originates in the Lesotho Highlands, from where it flows westwards to its mouth at Alexander Bay/Oranjemund on the Atlantic West Coast. The river basin is the third largest in Southern Africa, after the Zambezi and the Congo, covering a total area of 1,000,000 km^2 of which almost 600,000 km^2 is inside the Republic of South Africa. The work of ORASECOM is guided by the IWRM Plan (2019 – 2024) which provides a framework for sustainable development and management of the water resources taking into account the need for improved distribution and equitable allocation of benefits, to contribute towards socio-economic upliftment of communities within the basin, and ensure future water security for the basin States. Since its establishment, the Commission prides itself in its ability to be innovative and has generated best practices in addressing challenges facing the basin and contributing to sustainable development. ORASECOM has also contributed immensely towards enhancing transboundary cooperation among the State Parties.

Through this special event, ORASECOM will showcase its achievements and best practices. The event shall also serve as a platform for sharing ideas with the broader water resource management sector to enhance water resources management for ORASECOM and the region. Our achievements which will be showcased, shared, and demonstrated will cover the following:

1. Transboundary Water Governance Tools (including, procedures on data and information exchange, Environmental and Social Assessments, Environmental Flows, and River Quality Objectives as tools to improve water resource quality)
2. Innovation in Water, Energy, Food, and Ecosystem nexus approaches by ORASECOM
3. Transboundary Aquifer Governance
4. Inclusive Engagement with Communities, private sector, and mainstreaming gender considerations in ORASECOM planning.

Re-Looking the Role of Soils in Scaling Integrated Catchment Management - A Call for Urgent Action

Convener
Catholic Relief Services (CRS)

Session Summary

The Integrated Catchment Management (ICM) approach recognizes a catchment as an appropriate organizing unit for understanding and managing ecosystem processes in a context that includes social, economic, and political considerations, and guides communities towards an agreed vision of sustainable natural resource management.

Most Countries who have adopted the ICM approach such as Ethiopia, have done so with an aim to manage water and address food security. Numerous reports attest to the rampant loss of soil in escalating volumes. This high loss of soil poses an existential threat to life on earth, hence the need for urgent and a close refocus on issues pertaining to soil in ICM.

Soil plays a crucial role in ICM due to its influence on water retention, quality, quantity and ecosystem health. The proper management of soil is essential for controlling water flows, supporting biodiversity, and mitigating climate change impacts (soil is the largest terrestrial carbon sink).

The African Union Commission (AUC) hosted the African Fertilizer and Soil Health Summit (AFSHS) in Nairobi, Kenya from 7th to 9th May 2024. The objective of the Summit was to take action on Africa's widespread, decades-long decline in soil quality and health - a phenomenon that continues today and which negatively affects agricultural productivity and food security across the continent.

The Summit outlined commitments to enhance agricultural productivity, soil health, and sustainability across Africa. The African Member States endorsed this initiative and committed to undertaking a ten-year action plan to prioritize the value of soils.

Stakeholders are invited to this session to re-look into the important role of soils in scaling ICM and how to respond to the urgent action on sustainable management of soils. It is expected that the event will be attended by representatives of African governments, AUDA-NEPAD, donors, research organizations, and the private sector.

Objectives of the session:

- To share experiences from CRS initiatives on promoting soil management from ICM related programs- Learning from Malawi ready and the development of the soil information hub.
- To broaden the stakeholder engagement with key organizations interested in and able to support implementation by countries aiming to develop SIA action plans. Lesotho is among those countries interested in developing a Soil health action plan.

Innovative Approches, Practice and Technologies for Affordable and Sustainable Wash Services:

Bridging Theory, Practice and Impact

Convener

World Vision

World Vision is one of the largest Non-Governmental Organizations implementing WASH globally. It has committed to focusing its programming on reaching the most vulnerable communities in the coming years and leaving no one behind. The side session hosted by World Vision at the upcoming 25th WaterNet/WARFSA/GWPSA Symposium is poised to be a dynamic session for exploring innovative approaches, best practices, and cutting-edge technologies aimed at ensuring sustainable Water, Sanitation, and Hygiene (WASH) services. With a focus on building community resilience and bridging the gap between theory, practice, and impact, this session promises to be a pivotal moment in advancing global WASH initiatives.

The session will delve into critical topics, including novel strategies for enhancing water access, sanitation facilities, and hygiene promotion; climate-smart technologies; and resilience and sustainability of WASH infrastructure in underserved areas. By showcasing successful case studies and lessons learned from the field, participants will gain valuable insights into overcoming challenges and maximising the efficiency of WASH interventions. The session will also explore the role of technology in revolutionising WASH service delivery, from innovative water purification methods to smart sanitation solutions, among others.

Moreover, the session will highlight the importance of community engagement and empowerment in driving sustainable WASH solutions. By fostering partnerships with local stakeholders, leveraging indigenous knowledge, and promoting ownership of WASH projects, World Vision aims to ensure its initiatives' long-term viability and impact.

Ultimately, this side session will serve as a platform for stakeholders to exchange ideas, share best practices, and collaborate on strategies for advancing the global WASH agenda. World Vision hopes to catalyse meaningful change and drive progress towards achieving sustainable and equitable WASH services for all by bringing together a diverse group of experts, practitioners, and policymakers.

Join us at the World Vision side session to be inspired, informed, and engaged in the collective effort to create a world where everyone can access safe water, improved sanitation, and better hygiene practices. Together, we can turn theory into practice and make a lasting impact on the lives of communities.

Water Governance for Sustainable Catchment Management in South Africa:

Challenges and Opportunities

Conveners

Cape Peninsula University of Technology, University of KwaZulu-Natal, Water Research Commission, International Water Management Institute & Inkomati-Usuthu Catchment Management Agency

The activity builds on the session led by the SARChI Research Chair in governance and economics for water and sanitation sector institutions, held at the 24th WaterNet/WARFSA/GWPSA Symposium in 2023. The session will focus on water governance at the catchment level, analysing the current challenges and opportunities. Key regulatory instruments, institutional arrangements, and practical implementation of water governance in South Africa will be presented, including gaps in catchment-level water governance. Overlaps and contradictions in statutory and customary water governance and how they have resulted in inequalities in water allocation will be presented. Water governance implementation will be reviewed at the catchment level using the experiences of the Inkomati-Usuthu and Breede-Olifants Catchment Management Agencies. Models for local water governance and their impacts on community livelihoods through examples of some of the Water Research Commission's work in Limpopo and KwaZulu-Natal will be presented. Challenges of local-level formal and informal water governance in small irrigation schemes in South Africa will also be discussed, including the mechanisms of the harmonization of conflicting systems. The outcomes will add to the knowledge of water policy reviews, including finding solutions for some of the long-term challenges, such as the achievement of equitable water allocation.

From Science to Practice, Water Resources Protection and Nature Based Solutions for Enhanced Resilience and Adaptive Capacity

Conveners

World Wide Fund for Nature (WWF) Zambia

Session Summary

The following are the areas that the session will focus on:

- WWF will communicate the importance of water for ecosystems, health, energy, agriculture.
- WWF will highlight the importance of water, not only as a social good but also an economic driver through the water stewardship approach and the role played by private sector in their contribution to water resource protection.
- Highlight current challenges such as climate change, floods, infrastructure, water energy food, and environment nexus, capacity building and skills needed in water resources management.
- WWF will raise awareness on the need for action on water resources protection to meet SDG targets and Vision 2030 through the Zambia Water Investment Programme, 2022-2030.
- WWF special session will create a learning platform where several challenges and solutions are discussed in an integrated fashion.

Transboundary Water Ethics in Africa – ACEWATER III Project

Conveners

AUDA-NEPAD Water CoEs and Unit for Environmental Ethics, Stellenbosch University

Session Summary

As water becomes an increasingly scarce resource in Southern Africa due to climate change, so its transboundary management will become a frequent topic of debate and contestation. While empirical science and technology can guide us about how to manage resources in the best possible way, it cannot on its own help us to justify why we prioritise some communities' needs over others or decide that the needs of future generations are more important than current generations. This is the field of morals and values, the analysis and systemisation of which is commonly referred to as ethical frameworks and deliberation, also known as ethical analysis.

It is true that a general awareness of ethical concerns around water management exists across all of Africa's River Basins. In ORASECOM, for example, the principles of Universal participation, Cooperative Government, Equity, Peaceful dispute resolution and Communication and environmental protection are clearly articulated on the webpage. However, while this exists, to date there has been no explicit analysis of how these have been or are being applied and what differences it made to decision-making and outcomes, leaving decision-makers with virtually no ethical frameworks or guidelines to assist them in making better and more accountable decisions.

The special session will, firstly introduce the concept of ethical analysis and how it is not an imposition of rules on governments, water bodies or communities but rather an ongoing critical dialogue between stakeholders on how to prioritise values in tough ethical decisions. Secondly, it is the aim of the session to introduce the ACEWATER III research project entitled: Modelling Ethical Frameworks for Transboundary Water Resources Management within Africa: A dialogue between the African Union, National Governments and ACEWATER III.

This European Union funded research project, which will be ongoing for 3 years and focus largely on the Orange Senqu and Zambezi Basins, will involve developing ethical frameworks through an ongoing dialogue between the African Union, national governments and various organisations like SADC, ORASECOM and ZAMCOM. Thirdly, this workshop will involve active participation by inviting attendees to engage in an ethical dialogue in a transboundary water management case study in one of the two River Basins that are being researched in the ACEWATER III research project. Participants will be asked to identify the core values that are at stake and propose tentative solutions that will prioritise the diverse and possibly competing values that have been identified.

Target Audience: Academia, Business, Policy Makers, Civil Society, Researchers and Innovators

Bridging the Gap: Ecological Engineering Index for Enhanced Monitoring of Nature-Based and Ecologically Engineered Systems

Conveners

Ecological Engineering Institute of Africa and the University of the Freestate

ECOLOGICAL ENGINEERING INSTITUTE OF AFRICA

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

Session Summary

Despite the critical role of nature-based solutions (NBS) in addressing environmental challenges in Southern Africa and beyond, a significant gap exists in our current ecological monitoring frameworks for such systems. Traditional ecosystem health indices, designed primarily for natural systems, often fall short when applied to engineered environments. This session introduces a paradigm shift through the development of tailored Ecological Engineering Indices (EEI) that bridge this gap, enabling precise evaluation and enhancement of ecologically engineered systems.

Ecological engineering transcends traditional nature-based approaches by incorporating holistic and advanced design principles from the outset. This integration ensures that the engineered systems not only enable natural processes but also enhance functionality and sustainability. The session will explore how ecological engineering can be leveraged to develop novel EEI that are sensitive to the unique dynamics of such ecosystems, providing a more accurate reflection of their ecological health, resilience and contribution to ecological connectivity in the landscape.

This fresh perspective acknowledges the diverse responses of biotic components—ranging from microorganisms and macro-invertebrates to amphibians and birds—within engineered settings. Recognizing these variations is crucial for the effective monitoring and management of NBS. Our innovative approach involves utilizing cutting-edge technologies such as remote sensing, DNA metabarcoding, and AI-driven models to dynamically monitor and adapt to these ecological nuances.

Experts from the Ecological Engineering Institute of Africa at the University of the Free State will present ground-breaking case studies that demonstrate the application of these indices across various sectors. By showcasing the successful integration of ecological engineering principles in both NBS and more traditionally engineered environments, this session aims to highlight the versatility and necessity of EEI.

This session will not only redefine the scope of ecological engineering but also emphasize its potential to revolutionize environmental management practices. Attendees will leave equipped to implement these innovative principles and technologies, driving forward the sustainability agenda with robust, scientifically backed methods that go beyond traditional environmental solutions.

Joint WEF NEXUS Special Session UKZN-IHE-LSHTM-WRC

Broadening the Dimensions of the Water-Energy-Food Nexus

Conveners

University of KwaZulu-Natal, IHE-Delft, London School of Hygiene and Tropical Medicine, Water Research Commission and UNU-INWEH

Session Summary

Since becoming prominent, the water-energy-food (WEF) nexus has become an important transformative approach for sustainable socio-economic development and natural resources management. However, its practical adoption and implementation have been limited by a lack of real-world applications and uptake into sectors that depend on water, energy, and food, such as environment and health. Through a panel discussion, this session will address the following key topics:

- exploring the level of integration of environmental and social sectors, such as governance and health, within the WEF nexus research domain,
- assessing the extent to which interactions with the environment, governance, and health are considered in WEF nexus research,
- developing integrated WEF nexus scenarios for informing planning and policy scenarios, e.g. for 2030 to 2050,
- Developing a people-centric WEF nexus framework.

ENGAGING YOUTH FOR INTEGRATED CATCHEMENT MANAGEMENT (ICM)

Convener
ReNOKA

reNOKa
We are a river

Summary of Session I

ReNOKA engages target groups on all levels of society and in all institutions with a long-term perspective. Openly engaging with target groups early on in their lives means planting skills and knowledge of ICM in young minds and sustaining implementation of ICM for future generations. Aiming at collective action with rural communities, skilled labour force for practitioners and supporting the build-up of national expertise requires quantitative measures that benefit the whole young population as well as high quality measures to further dedication to NRM.

This session will showcase educational development for ICM as well as opportunities to bridge the gap between education and employment in a competitive labour market in a country with high unemployment rates.

YOUTH LED OPERATIONALIZATION OF ICM

Summary of Session II

Experience plays a big role in leadership and representation of people. This often means that decision making processes are not inclusive of the interests of young people. Inclusion of youth in a countrywide intersectoral endeavor requires but does not end with advocacy events but needs a pro-active approach that opens pathways for youth and their interests to be recognized. Aiming at appropriate representation of youth to advocate for their interests as well as youth participating and leading the planning and implementation of activities requires a dedicated design of institutions, the dedicated work with youth and the provision of opportunities to implement own activities.

This session will showcase the ICM institutional setup from a youth perspective as well as work with and by youth under the umbrella of ReNOKA.

Partnerships for translating science to policy:

How science is informing the discourse around legal frameworks and strategic planning in the Buzi, Pungwe, Save and Limpopo River Basins

Conveners

BUPUSACOM, IUCN, GWPSA, LIMCOM, SADC- GMI, and WaterNet

Session Summary

The Session is themed “Water, Ecosystems, and the Environment”. The session seeks to value the potential of the ecosystem services approach for improved decision-making with an emphasis on integrative catchment planning. This will be done through partnerships for translating science to policy by informing the discourse around legal frameworks and strategic planning in the Buzi, Pungwe, Save and Limpopo River Basins. The session will be convened by the Buzi, Pungwe, and Save Watercourses Commission (BUPUSACOM), Limpopo Watercourse Commission (LIMCOM) supported by UNDP-GEF, Global Water Partnership Southern Africa (GWPSA), International Union for the Conservation of Nature (IUCN), Southern African Development Community Groundwater Management Institute (SADC-GMI), WaterNet.

Important Dates and Registration Fees

Deadlines

Deadline for submission of papers:	**15 October 2024**

Deadlines

Deadline for submission of abstracts:	**Closed**
Notification acceptance of abstracts:	**Done**
Deadline for early bird registration:	**Closed**

Registration Fees for Physical Attendance

Early Bird Registration for International Delegates	**Closed**
Early Bird Registration for Lesotho Based Delegates	**Closed**
Payable by 31 July 2024	
Normal Registration for International Delegates	**USD 430**
Normal Registration for Lesotho Based Delegates	**LSL 7,220**
Payable by 30 September 2024	
Late Registration for International Delegates	**USD 480**
Late Registration for Lesotho Based Delegates	**LSL 9,120**
Payable after 30 September 2024	
Early Bird International Student Registration	**USD 300**
Early Bird Lesotho Based Student Registration	**LSL 5,200**
(Proof of studentship to be provided)	
Payable by 31 July 2024	
Normal Registration for International Student Delegates	**USD 350**
Normal Registration for Lesotho Based Student Delegates	**LSL 6,000**
Payable after 30 September 2024	

Registration Fees for Virtual Participants

Early Bird Registration for International Delegates	**Closed**
Early Bird Registration for Lesotho Based Delegates	**Closed**
Registration by 31 July 2024	
Normal Virtual Registration for International Delegates	**USD 80**
Normal Virtual Registration for Lesotho Based Delegates	**LSL 1,360**
Payable after 31 July 2024	
Late Virtual Registration for International Delegates	**USD 100**
Late Virtual Registration for Lesotho Based Delegates	**LSL 1,900**
Payable by 30 September 2024	

Exhibitions

International organizations/company	**USD 800**
Local organization/company	**LSL 13,600**
Payable by 30 September 2024	

Special Sessions

International organizations/company	**USD 800**
Local organization/company	**LSL 13,600**
Payable by 30 September 2024	

Payment Details for International Participants

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

Payment Details for Local (Lesotho) Participants

Bank Name:	Standard Lesotho Bank
Branch:	City Branch
Branch Code:	060667
Account Name:	National University of Lesotho
Account Number:	9080002587781
Currency:	Maloti
Swift Code:	SBICLSMX
Account Type:	Current Account
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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
- Local participants request invoices on nulwi@nul.ls

Proof of payments

Please upload proof of payment HERE
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: symposium@waternetonline.org or nulwi@nul.ls

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 Lesotho Brief which can be found HERE.