SCIENCE SUMMIT "WATER DAY" AT THE UNITED NATIONS GENERAL ASSEMBLY

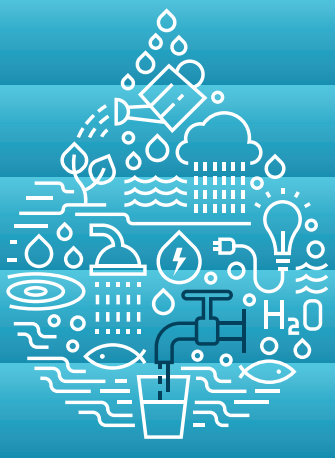
water & sanitation
Department: Water and Sanitation
REPUBLIC OF SOUTH AFRICA

WATER RESEARCH COMMISSION

African Union

AIP CONTINENTAL AFRICA WATER INVESTMENT PROGRAMME

ISC
Intelligence in Science



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water & sanitation | WATER RESEARCH COMMISSION | African Union | AIP CONTINENTAL AFRICA WATER INVESTMENT PROGRAMME | ISC

Lead Convenor: Water Research Commission (WRC), Department of Water and Sanitation
Co-Convenor: African Union, AIP High Level Panel on Water investments for Africa, and ISC Intelligence

Water Research and Innovation as an enabler towards universal access to clean drinking water and dignified sanitation for all. Mobilising Commitments for Implementing the African Union High-Level Panel Investment Action Plan towards the AU Africa Water Investment Summit and UN 2026 Water Conference in the context of G20 Presidency of Republic of South Africa.

Date: 23 September 2024 | Time: 9:00-13:00
Venue: Science Room, 2nd floor, CURE at 345, Park Avenue, New York

Introduction

Development Agendas are designed to drive a sustainable future addressing key systematic barriers to sustainable development, such as inequality, lack of access to basic human rights, unsustainable consumption patterns, weak institutional capacity, and environmental degradation. On 8 November 2022, the African Union formally inaugurated the International High-Level Panel on Water Investments for Africa, at COP 27 in Sharm el Sheikh, Egypt. Comprising Heads of States and global leaders, the objective of the Panel is to mobilise high-level commitment and resources for the Continental Africa Water Investment Programme (AIP) that was adopted by the AU Heads of States and Governments in February 2022.In September 2023, AU Heads of States committed to accurate implement to of the AIP as part of the African Leaders Nairobi Declaration on Climate Change .

During the UN 2023 Water Conference, the African Union Commission (AUC) in collaboration with the International High-Level Panel launched a report that outlines how to mobilise an additional US$30 billion per year by 2030 towards all water-related Sustainable Development Goals (SDGs). The High-Level Panel, the AUC launched the Africa Water Investment Action Plan on 2 December 2023 during COP28 Dubai, outlining 5 priority actions for countries and their partners to mobilize the additional US$30 billion/year needed to close Africa's water investment gap.

Convened by the Government of South Africa'Water Research Commission (WRC) under the Department of Water and Sanitation in collaboration with the African Union and AIP High-Level Panel, the session will review the progress in mobilising invests for the AU High Level Panel Investment Action Plan, outline a road map towards the AU Africa Water Investment Summit and UN 2026 Water Conference in the context of the upcoming G20 Presidency of Republic of South Africa. This will include establishment of a working group to support implementation of the roadmap.

The Session will also review previous United Nations recommendations on how to accelerate progress to achieve access and sustainable management of water and sanitation for all, as well as achievement of multiple other Sustainable Development Goals (SDGs). High-level recommendations by the HLPW included, among others: understanding, valuing, and managing water to provide a foundation for broader integrated water management; an integrated approach at local, country, and regional levels, including building partnerships and international collaboration at the global level. Five accelerators were identified namely, Governance, Financing, Data and information, Capacity development and innovation.

According to UN World Water Development Report 2024, None of the Sustainable Development Goal (SDG) six targets appear to be on track, and so is the continental and regional development agendas and commitments. 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. Regions and countries can achieve development agendas through improved policies, inclusiveness, action oriented and strategic partnerships.

This water day session is therefore organised to:

- To facilitate joint learning from global experiences and good practices with regards to the implementation of development agendas.
- Outline a road map towards the AU Africa Water Investment Summit and UN 2026 Water Conference in the context of the upcoming G20 Presidency of Republic of South Africa.
- Share experiences of how transformative Water RDI programmes are designed, resourced, and implemented to support the transition to a sustainable future.
- Explore how to effectively resource and finance the African and global water system of innovation.
- Highlight successful cases studies on how water research and innovation has contributed to strengthening service delivery related to basic human rights.
- Engage African leaders on their role and contribution in setting, resourcing, and implementing future development agendas.

Target audience: policy makers, water research and infrastructure funders and investors, researchers, innovators, entrepreneurs, implementation partners, and institutions implementing research and capacity building programmes.

Draft Programme "Water Day at the Science Summit"

Towards the AU Africa Water Investment Summit and UN 2026 Water Conference in the context of G20 Presidency of Republic of South Africa

Programme Director: Dr Mamohloding Tlhagale, Head of Partnerships and Business Development, Water Research Commission, South Africa

Time	Agenda Item	Speaker
08:30-09:00	**Arrival and tea**	
09:00-09:30	Opening and Welcome Remarks	Dr Mamohloding Tlhagale, WRC Mr Declan Kirrane, ISC Intelligence
09:30-09:40	Opening Address	Hon. Penny Majodina, Minister of Water and Sanitation, Republic of South Africa
09:40-10:00	***Opening Plenary:*** Setting the scene and taking stock of lessons learned in mobilisation of water investments, the implementation of global development agendas, and the levers for change into the future. • ***Keynote 1:*** Driving a more rapid developmental transition in Africa: What have we learned about the levers for change? • ***Keynote 2:*** A global water RDI Agenda for the future.	• Dr Thomas Kariuki, CEO Science for Africa Foundation • Dr Jennifer Molwantwa, CEO, Water Research Commission

Time	Agenda Item	Speaker
10:00-10:40	Facilitated Panel: Mobilising Commitments towards the AU Africa Water Investment Summit and UN 2026 Water Conference in the context of G20 Presidency of Republic of South Africa. *Facilitator: Mr Harsen Nyambe, Director of Blue Economy and Sustainable Environment at the African Union.* *Co-Facilitator: Mr Alex Simalabwi, CEO of the AIP High Level Panel Secretariat and Executive Secretary, GWPSA-Africa*	**Towards the AU Africa Water Investment Summit and UN 2026 Water Conference in the context of G20 Presidency of Republic of South Africa** **Panelists**: • H.E. Jakaya Kikwete, Alternate Co-Chair, AU–AIP International High-Level Panel on Water Investment for Africa, Board Chair-GWPSA-Africa • H.E. Josefa Leonel Correia Sacko, Commissioner for Rural Economy and Agriculture African Union Commission. • Hon. Penny Majodina, Minister of Water and Sanitation, Republic of South Africa • Ms. Shaima Gargash, Director of Energy and Sustainability Affairs, UAE Ministry of Foreign Affairs • Dr. Mohamed Diatta, Sherpa to the President of Senegal on High Level Panel, Co-Host of the UN 2026 Water Conference • Henk Ovink, Executive Director, Global Commission on Economic of Water
10:40 -10:50	**Q&A and input from participants and Summary by AUC Harsen Nyambe, AUC**	
10:50 -11:40	Transformative programming for water and sanitation service delivery Facilitated Panel Conversation: Transformative RDI programming for enhanced impact in the water sector – building a capable WASH sector workforce *Facilitator: Dr Rethabile Melamu, WRC Board Chairperson*	**Case study presentations (7 min each)** • Ms Virginia Molose - Acting Head of Stakeholder Engagement. South African Case studies (MUS, SASTEP and NFEPA) **Panellists** • Prof Jean-Marie Kileshye Onema, WaterNet Executive Director • Prof Pascaline Dupas, Professor of Economics and Public Affairs at Princeton University and Co-Scientific Director of J-PAL Africa • Ms Virginia Molose, WRC, Acting Head of Stakeholder Engagement • Ms Leanne Burney, Programme Officer at UN-Water Technical Advisory Unit
11:40-11:50	**Q&A and engagement with participants**	
11:50-12:30	Future sustainable and demand driven water sector funding and financing	• Mr Dominic O'Neill, Executive Director of the Sanitation and Hygiene Fund • Mr Michael John Webster, Program Manager of the 2030 Water Resources Group, World Bank's Global Water Practice
12:30-12:40	**Q&A and engagement with participants**	
12:40-12:45	Call for partnership and African leadership and closing remarks	WRC CEO, SA
12:45-12:55	Signing of a new partnership MoU (WRC and SHF) TBC	WRC CEO and SHF Executive Director
12:55-13:00	Closing remarks	Dr Rethabile Melamu, WRC Board Chairperson
13:00	**Lunch and networking**	

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SPEAKER PROFILES

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HOST: DEPARTMENT OF WATER AND SANITATION AND THE WATER RESEARCH COMMISSION, SOUTH AFRICA

Hon. Penny Majodina

Minister of Water and Sanitation, Republic of South Africa

Ms Pemmy Majodina was appointed as Minister of Water and Sanitation from 3 July 2024. She was a member of the National Council of Provinces from 2002 until 2004. Before she became a Member of Parliament in 2019, she served as a member of the Eastern Cape Provincial Legislature from 2004 to 2019. She was appointed as Eastern Cape Member of the Executive Council (MEC) for Health from 2004 to 2008; MEC for Roads and Public Works from 2009 to 2010; MEC for Social Development and Special Programmes from 2010 to 2014; MEC for Sport, Recreation, Arts and Culture from 2014 to 2018, and MEC for Public Works from 2018 to 2019. Ms Majodina served in various political roles, including in regional, provincial and national executives of the South African Students Congress, African National Congress (ANC) Youth League, ANC Women's League and South African Communist Party. She is a former member of Umkhonto we Sizwe, the ANC's defunct military wing, and is an educator by profession. In 2010, she received an Honorary Doctorate in Community Development from the Arlington University of Australia.

Dr Rethabile Melamu

WRC Board Chairperson

Dr Melamu is sustainability professional who is trained in Chemical and Environmental Engineering. She is currently the Chief Executive Officer of the South African Photovoltaic Industry Association (SAPVIA). She almost two decades of experience in the areas of water security, clean energy, green economy, environmental sustainability, enterprise development, life cycle assessments and climate change. My experience spans several sectors including water and sanitation, renewable energy, and waste management. I am a seasoned professional with a depth of understanding on adoption of innovative climate smart technologies in society. This is backed by experience of running a technology innovation-based incubation programme for almost 6 years. I have solid experience in developing public sector policies and have led the development of sub-national energy and green economy strategies and facilitated their implementation. I sit on several boards and advisory committees of private, academia and the public sectors organisations including as the Chair of the Water Research Commission. I am a thought leader in the energy, water and green economy sectors, having published reports, thought leadership pieces and academic articles on several platforms in my areas of expertise. I have featured extensively as a speaker on various national and international platforms. I have received recognition for my contribution in the energy sector, notably as a 2017 finalist under the Outstanding Woman in Power and Energy in Africa category at the Africa Utility Week. In 2019, I was recognised by the national Mail & Guardian newspaper as one of Women Who Are Changing South Africa in the Public Sector.

Dr Jennifer Molwantwa

CEO, Water Research Commission, South Africa

Dr Jennifer Molwantwa is the CEO of the water research commission of South Africa since 2022. She holds a PhD in Biotechnology focusing on mine water remediation and water resource management, funded by the Water Research Commission. She has over 20 years' water sector research and development and governance experience having served on various national, international Boards of Directors and university council. Jennifer served on the National Planning Commission that developed the Vision 2030 and the South African National Development Plan, as a commissioner from 2010-2015. She was a Research Manager at the WRC, and an Executive at a Catchment Management Agency in South Africa. Her passion is capacity building, skills development, and inclusion of Historically Disadvantaged Individuals (HDI) in the mainstream science and technology careers and economy of which water and land are integral. She believes: *"the way for women to participate at all levels of the economy, science and technology, knowledge generation and business depends on the opportunities created by women before them".*

CO-CONVENER: AFRICAN UNION (AU)/INTERNATIONAL HIGH-LEVEL PANEL ON WATER INVESTMENTS FOR AFRICA (AIP HLP)

H.E. Jakaya Kikwete

Alternate Co-Chair: AU AIP International High-Level Panel on Water Investment for Africa and Board Chair: Global Water Partnership Southern Africa-Africa Coordination (GWPSA-Africa

The fourth president of Tanzania, H.E. Jakaya Kikwete is a graduate of economics from the University of Dar es Salaam. He has served in many party, military, and government positions, including the Tanzanian ministerial portfolios of Finance, Water, Energy and Mineral Resources, Foreign Affairs and International Cooperation. He has also served as the chairperson of the African Union in 2008–2009 and the chairman of the Southern African Development Community Troika on Peace, Defence, and Security in 2012–2013. H.E. Jakaya Kikwete has served as alternate Co-Chair of the AU's AIP International High-Level Panel on Water Investment for Africa since its launch in 2022.

H.E. Josefa Leonel Correia Sacko

Commissioner for Rural Economy and Agriculture African Union Commission

H.E. Josefa Leonel Correia Sacko is the Commissioner for Rural Economy and Agriculture at the African Union Commission. She was previously the special adviser to the Minister of Agriculture on issues related to international cooperation. She served as Secretary General of the Inter African Coffee Organization (IACO) for 13 years, overseeing the coffee economy of 25 African Coffee producing countries. H.E. Josefa Leonel Correia Sacko is a member of the AU's AIP International High-Level Panel on Water Investment for Africa.

Mr Harsen Nyambe

Director of Blue Economy and Sustainable Environment at the African Union

Mr. Harsen Nyambe is Director of Blue Economy and Sustainable Environment at the African Union. He has 23 years of professional experience, of which 14 years of his career has been in international organisations covering the Southern African Development Community (SADC) as a Senior Programme Manager responsible for Natural Resources, the Commonwealth Secretariat as Head of Climate Change and the African Union Commission. Mr. Nyambe co-leads the AIP Expert Advisory Core Group, which provides support in AIP Implementation and development of the AIP-PIDA Water Investment Scorecard.

Ms. Shaima Gargash

Director of Energy and Sustainability Affairs, UAE Ministry of Foreign Affairs

Ms. Shaima Gargash is the Director of Energy & Sustainability, Ministry of Foreign Affairs for the United Arab Emirates. Previously, Ms. Gargash was the Deputy Chief of Mission at the UAE Embassy in Washington, D.C., serving since her appointment in 2019. Ms. Gargash was also the Head of the Embassy's Communications and Public Diplomacy Department and a Political Analyst in the Congressional Affairs Division. Ms. Gargash holds a BA in Economics and a minor in International Relations from the American University of Sharjah, and a Masters in Public Administration from the Dubai School of Government in the UAE.

Dr Mohamed Diatta

Sherpa to the President of Senegal on the AIP High-Level Panel, Co-Host of the UN 2026 Water Conference

Dr. Diatta is Coordinator of the Monitoring and Promotion Unit for the Results of the 9th World Water Forum within the Ministry of Water and Sanitation of Senegal. Dr. Diatta is also Sherpa to the President of Senegal, who is Co-Chair of the AU's AIP High-Level Panel. Dr. Diatta holds a PhD in Geography and Planning, specializing in Water Policy, Governance and IWRM. He is an expert in the field of environment and water management in Senegal and West Africa.

Mr Henk Ovink

Executive Director, Global Commission on Economic of Water

Mr. Henk Ovink is the Executive Director and founding Commissioner for the Global Commission on the Economics of Water. Mr. Ovink was the first ever global water ambassador for over 8 years, appointed in 2015 by the Dutch Cabinet as Special Envoy for International Water Affairs. In this capacity, he co-led the second UN Water Conference in 2023. Mr. Ovink sits on the AIP Steering Group, which provides strategic support and guidance to the implementation of the AIP.

Mr Alex Simalabwi

CEO of the AIP and Executive Secretary: GWPSA-Africa

Mr. Alex Simalabwi has over 20 years of experience in high-level public policy engagement and advocacy on climate-resilient water investments and the integration of water into economic national development. He is the CEO of the AIP and Executive Secretary of GWPSA-Africa. He co-chaired the World Bank Expert Group for the Pilot Program for Climate Resilience, a $1.2 billion funding window of the $8.1 billion Climate Investment Funds. He worked closely with the UN High Level Panel on Water set up by UN Secretary General and World Bank President, comprising 11 Presidents.

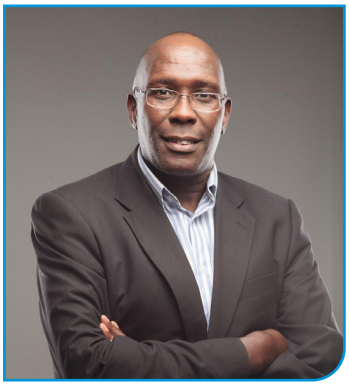
PROGRAMME DIRECTOR

Dr Mamohloding Tlhagale

Head of Partnerships and Business Development, Water Research Commission, South Africa

Dr Tlhagale is the Head of Partnerships and Business Development at the Water Research Commission of South Africa. With 20 years of experience of managing partnerships for science, technology and innovation and holds a PhD in Management of Technology and Innovation. Dr Tlhagale has been an advocate of creating enabling environment to support the creation, uptake and transfer of the South African scientific knowledge and innovation products in and beyond the borders of SA. Dr Tlhagale serves on several international Advisory Boards and strategic committees contributing to shaping the local, African and international research, development and innovation agendas, programmes and improving international cooperation. Prior to joining the WRC, Dr Tlhagale practiced as a Medical Microbiologist and a lecturer at the Medical University of Southern Africa and Director for Strategic Partnerships at the South African Department of Science and Innovation. She is also a qualified Consciousness Coach who enjoys mentoring and empowering young professionals.

SPEAKERS



Dr Thomas Kariuki

CEO, Science for Africa Foundation

Dr Thomas Kariuki is Founding Director and Chief Executive Officer for the Science for Africa Foundation, established in 2021 to support, strengthen and promote science and innovation in Africa. A long-time advocate involved in the global effort to develop vaccines, drugs and diagnostics for poverty related diseases, Kariuki is a prolific science leader whose experience in science diplomacy has enabled the mobilisation of support and hundreds of millions in USD funding from global funders and African governments for science and innovation in Africa. Through his leadership, Kariuki is driving the SFA Foundation to establish global strategic partnerships and build a sustainable pan-African science funding organisation that contributes to the growth of science and innovation in Africa. He is a recipient of various national and international awards including the Presidential honour of the Order of Grand Warrior of Kenya (OGW) for scientific leadership and public service, is a fellow of the African Academy of Sciences (FAAS) and an Honorary Professor of Research of the Liverpool School of Tropical Medicine, LSTM. He has served on many global boards and committees of Africa-wide professional networks including the Federation of African Immunological Societies (FAIS), CEPI, the World Health Organization and others.

Ms Virginia Molose

Acting Head Stakeholder Engagement, Water Research Commission

Ms Molose started her career as a gender fieldworker in the land sector where she worked as a gender activist on programmes focusing on strengthening women's capacities to understand the then new land reform policies and their rights and responsibilities in that regard. This also entailed support to women on farms to lodge their land claims, negotiate for better living and working conditions and recognition as adults in law. Ms Molose continued to work in the civil society sector and broadened her experience and skills to include livelihoods and rights based approaches. She gained considerable amount of experience at training and facilitation in this work while travelling the breaths and depths of the country particularly in rural areas to support mainly civil society organisations, officials from rural municipalities and provincial and national departments in this work.

It was from the livelihoods work that Ms Molose developed interest in the water and sanitation sector and ultimately joining the sector in 2003 where she remains to date. Her contribution to this sector has been in training, skills development and capacity building in areas like health and hygiene promotion, user education and use of participatory methodologies. Ms Molose has in this sector deepened her policy research work which led her to manage various policy research projects, serve in strategic sector committees and teams. In her current portfolio as a Research Manager Virginia is responsible for the multiple use water services and empowerment of women entrepreneurs in the water and sanitation sector.

Prof Jean-Marie Kileshye Onema

Executive Manager and Head of the WaterNet Secretariat

Prof Jean-Marie Kileshye Onema is the Executive Manager and Head of the WaterNet Secretariat. He oversees the implementations of Capacity development activities across the 16 SADC countries (www.waternetonline.org). He is currently the Secretary General of International Association of Hydrological Sciences (IAHS) (www.iah.info), Wallingford, UK. Prof Kileshye Onema holds an Extraordinary full Professorship position with the Unit of Environmental Sciences and Management at the North West University, South Africa (www.nwu.ac.za). Similarly, He has a Professorship appointment with the Faculty of Engineering at the University of Lubumbashi, DR Congo (www.unilu.ac.cd). Prof Kileshye Onema sits on the Board of the Princeton Climate Institute, New Jersey, (USA). Likewise, He sits on the Academic and Scientific Advisory Committee of the SASSCAL Graduate Programme at the Namibian University of Sciences and Technology (NUST). Prof Kileshye Onema holds a PhD degree in water engineering from the School of Engineering and Built Environment of the University of Witwatersrand, South Africa. He went for a number of specialised trainings at the University of Nevada in Reno, USA, the University of Osnabruck in Germany and IHE Delft in the Netherlands to name a few.

He is a well published author and has led several collaborative projects on various aspects of water resources management. He was involved in Transformative Futures for Water Security, Valuing water and IAHS preparatory sessions for the UN water 2023 conference in New York.

Prof Pascaline Dupas

Princeton University

Pascaline Dupas is a Professor of Economics and Public Affairs at Princeton University and Co-Scientific Director of J-PAL Africa. Pascaline joined the Princeton faculty in July 2023. She was previously the Kleinheinz Family Professor of International Studies at Stanford University, where she spent 12 years on the faculty. She has also held faculty positions at Dartmouth College and UCLA. Her ongoing research include studies of education policy in Ghana, family planning policy in Burkina Faso, and government subsidized health insurance in India, among others. She is the co-President of the Bureau for Research and Economic Analysis of Development (BREAD) and a Research Associate at the National Bureau for Economic Research (NBER).

In 2013 she received a National Science Foundation CAREER award, awarded by the US government to recognize and honor outstanding scientists and engineers at the outset of their independent research careers. In 2015 she received the Best Young French Economist Prize, awarded to the French economist under 40 whose work is most influential. She is a Fellow of the Econometric Society, a former Sloan Fellow, and a former Guggenheim Fellow. Pascaline studied philosophy and economics as an undergraduate student at the École Normale Superieure (Ulm). She obtained a PhD in Economics from the École des Hautes Études en Sciences Sociales in 2006. In addition to her role as co-Scientific Director of J-PAL Africa, Pascaline has served as Co-Chair of J-PAL's Health sector, a member of the Executive Committee of J-PAL's Board of Directors, and as a mentor to J-PAL regional scholars. She has also lectured at J-PAL training events.

Leanne Burney

UN-Water

Leanne is UN-Water's Programme Officer based in New York. Leanne has over twenty years of experience working on development, water management and sanitation challenges. She served as an expert in water and sanitation strategies for the UN Secretary General's Advisory Board on Water and Sanitation (UNSGAB) from 2009-2015 where she supported the Board's sanitation, wastewater and integrated water resources management work. Before this, she coordinated the Global Water Partnership's (GWP) strategic development process resulting in their 2009-2013 Strategy. Early in her career, Leanne worked for both UNEP and UNDP on sustainable development policy. Most recently, she served as a Senior Economic Affairs Officer in DESA's Division for Sustainable Development and as UN-Water Senior Consultant. Leanne has a Political Science B.A. and a M.A. in environmental studies.

Mr Dominic O'Neill

Executive Director of the UN's Sanitation and Hygiene Fund (SHF)

Dominic O'Neill is the Executive Director of the UN's Sanitation and Hygiene Fund (SHF) since its inception in 2021. Dominic has a long-standing career spanning over three decades in international development and environmental health. In his early career, he worked for the Ministry of Health in Namibia as an Environmental Health Adviser. He then worked for the UK Government as a senior civil servant in the Department for International Development serving as Country Director in Yemen, Sierra Leone, Nepal and as Head of UN funding in DFID. On leaving the UK Government, Dominic became the Global COO for WWF International.

Dominic served as an Executive Director on the Board of the African Development Bank representing the Governments of the Netherlands, the UK and Italy from 2013 to 2016, under Dr Kaberuka and then Dr Adesina. Dominic graduated in Environmental Health and later completed an MSc in Water. Deeply committed to inclusivity and gender equality, Dominic became a member of the International Gender Champion Network in 2024.

Mr Michael John Webster

Program Manager of the 2030 Water Resources Group

Mike is the Program Manager of the 2030 Water Resources Group. 2030 WRG is a multi-donor trust fund, managed by the World Bank's Global Water Practice. The fund advances global water security through public private collaboration. We empower partners to tackle water risks that affect food, cities and ecosystems by providing strategy insights, facilitating partnerships and security financing for scalable solutions.

From 2018 to 2023, Mike ran the Water and Sanitation Utility of the City of Cape Town. He led the City's response to the 'day zero' drought by implementing a strategy to achieve water security. Under Mike's leadership, the Directorate was the first utility in Africa to join the Leading Utilities of the World. Prior to 2018, Mike worked for the World Bank for 16 years. He joined through the Young Professionals Program and worked as a water and sanitation specialist in Washington DC, New Delhi and Harare.

CHARTING THE COURSE:

TOWARDS A SOCIETY-LED WATER RESEARCH AND INNOVATION AGENDA

CONTENTS

CHARTING THE COURSE:

TOWARDS A SOCIETY-LED WATER RESEARCH AND INNOVATION AGENDA

Water and sanitation service delivery weaves itself as a key enabler or inhibitor in all nations' development trajectories. Research and Innovation is a key driver in unlocking the capacity to innovate in water and sanitation service delivery under conditions of uneven progress, constrained budgets and dire need in communities, particularly in the developing world.

This concept note provides a starting point for thinking about how to design a more society-led and focused water research, development and innovation agenda and ecosystem that is able to rapidly and strategically drive transformative change from the community level upwards. This thinking is key to how we structure, partner and invest in our global and regional development agendas going forward and lead our societies to transformed futures.

This concept note has been drafted by the Water Research Commission (WRC), with input from its partners. Its purpose is to stimulate conversation and thinking as we collectively prepare to engage with each other at the September 2024 Science Summit Water Day at the United Nations General Assembly. As our conversation evolves, as to how we want to position water science and refine the water system of innovation in our development agendas going forward, this document can be updated and further refined.

1. WATER FLOWS THOUGHT OUR DEVELOPMENT AGENDAS: WHERE DO WE FIND OURSELVES NOW?

As we emerge into a post-pandemic world, we live in a context of uneven and slow economic recovery. When looking at the main global risks we are faced with now and over the next 10 years (WEF 2024) we are met with an interconnected web of environmental risks (extreme weather events, critical change to earth's systems, biodiversity loss and ecosystem collapse, natural resource shortages, pollution), social and political risks (societal polarization, involuntary migration, lack of economic opportunity, conflict) and technology risks (misinformation, adverse outcomes of AI technologies, etc). The lived experience of these risks dramatically affects all people, but particularly the poorest and most venerable communities in the world.

Effectively managing water and sanitation is an essential to tackling pressing global challenges like climate change, affordable and clean energy, biodiversity loss, food insecurity, disease pandemics and epidemics, disasters caused by natural hazards, conflict, extreme poverty and gender inequality. Failing on water and sanitation undermines all three dimensions of sustainable development: society, economy and the environment. It also undermines human rights, peace and security" (UN 2023)

The United Nations 2030 Agenda 2030 on Sustainable Development Goals (SDGs) are designed to be a blueprint for the achievement of a sustainable future across the world. Agenda 2030 seeks to address key systematic barriers to sustainable development, such as inequality, unsustainable consumption patterns, weak institutional capacity, environmental degradation,

and poor service delivery of fundamental services such as water and sanitation. The UN SDG Blueprint to Acceleration (2023) highlights that "water flows throughout the United Nations sustainable development agenda. SDG 6 on water is highly synergistic with all other SDGs in the 2030 Agenda. The signal is clear: water-related threats and service delivery must be a priority in the race to 2030 and beyond.

The road to accelerating water-related development goals is going to be challenging. In 2023, the SDG dashboard indicated that all environmentally framed goals (2,6,7,13,14,15) were facing major or significant challenges. When looking specifically at the clean water and sanitation goal (6), the only global region on track to potentially reaching the goals is the OECD. Sub-Saharan Africa still faces 'major' implementation challenges with stagnating capacity to move forward. The rest of Africa continues to face significant challenges with only moderate capacity to accelerate to 2030 (SDG dashboard 2024, Sachs et al. 2023).

The implementation challenges facing the water and environment SDGs are mirrored in all the SDGs at present, with none fully on track. Since 2020, various global shocks (pandemic, cost of living, regional wars) have resulted in significant stalling in progress. Low-income and lower-middle-income are worst affected and in many cases are experiencing reversal in progress on various goals (Sachs et al. 2023).

Given the cross-cutting role that water plays through all the SDGs, the need for renewed commitment to the water goals has been emphasised. The UN 2023 Water Conference generated this renewed commitment across sectors to address the global water crisis as a top priority. One of the top 5 signals from this gathering is that there is not enough innovation being developed and implemented in the water sector (UN 2023):

The need to prioritize innovation and research is a key lever to unlocking water security in the future. Alongside the development and deployment of technical water technologies, solutions and decision support, there was also a calling from the conference to focus on research into water finance innovation, as well as governance, procurement and regulatory tool innovation. The focus in all messaging is the need to unlock a responsive and nuanced ecosystem for water research that allows innovation to have a sustainable, transformative and rapid impact on the lives of communities and the poor while simultaneously driving water security.

To meet the demands of the future, research and innovation needs to pivot to be fully community-centric and science needs to be downscaled to meet the need of the village/community. Here solutions must enhance local practises, appropriately facilitate new thinking and influence behaviours. This is especially important for emerging economies and developing countries where capacity and finance is limited.

Water Day Programme Reflection Questions:

- The global community is at the point of shifting gears to plan for the post 2030 Agenda. What are the levers for change into the future for building a more resilient, just and equitable world?
- How do we most powerfully position water research and innovation as one of the key change catalysts into the future, and what system of innovation will best enable this?

2. WATER RESEARCH AND INNOVATION POLICY SIGNALS FROM AFRICA

In Africa, the SDGs have had mixed policy and implementation success. On the one hand, the "Common African Position" (CAP) which was an African consensus-building process prior to the SDGs, found a strong foothold in the 2030 Agenda (AUC 2015, AFDBG 2015). Similarly, the principles of the Common Agenda and SDGs have served as a strong signalling foundation for other African and developing world agendas developed subsequently. This includes (amongst others) Africa's Agenda 2063, the Science, Technology and Innovation Strategy for Africa 2024 (STISA 2024), and the Southern African Development Community Water Research Strategy (SADC Research Strategy).

On, the other hand, Africa (and particularly Southern Africa) does not stand a real chance of fully achieving the SDGs in the wake of ongoing structural inequalities and challenges that have not been meaningfully dealt with in the SDG implementation period (AFDBG 2015, SDGCA 2017). This has resulted in an element of reprioritization to focus more on the regional development strategies as a means of owning a regional developmental trajectory and attempting to turn around structural inequalities.

In the wake of the mixed success roll out of the SDG priorities, particularly in Africa; looking at the pivotal multilateral developments that have emerged alongside the SDG process, provides signals on where African and global priorities should lie when looking to the future.

Eight clear signals emerge when reading across Agenda 2063 (2015), STISA 2024 (2024) and the SADC Research Strategy.

- Research and Development (R&D) Investment: There is a crucial need to invest in R&D to develop innovative solutions to address water-related challenges such as scarcity, quality, and access. This includes funding for interdisciplinary research projects, technology development, and knowledge creation in water resource management.
- Capacity Building: Building the capacity of African researchers, policymakers, and practitioners in water-related fields is essential. This involves providing training, education, and skills development opportunities to equip them with the knowledge and expertise needed to tackle complex water issues effectively.
- Collaboration and Knowledge Sharing: Encouraging collaboration and knowledge sharing within countries and communities and among African countries is vital for addressing transboundary and national water issues and sharing best practices. This can involve establishing networks, platforms, and partnerships for exchanging information, experiences, and lessons learned in water management. Scientists are a core part of this stakeholder base.
- Institutional Strengthening: Strengthening institutional capacity and governance frameworks for water management is critical. This includes enhancing regulatory frameworks, policy coherence, and coordination mechanisms at the national, regional, and continental levels to ensure effective implementation of water-related initiatives. This will require innovative research support in governance and economics issues. It will also require a governance framework that guides the use of transformative and circular approaches that accelerate solutions to cross-cutting global challenges.

- Promoting Innovation and Entrepreneurship: Promoting innovation and entrepreneurship in the water sector is essential for driving technological advancements and creating economic opportunities. This involves supporting startups, small and medium enterprises (SMEs), and innovators working on water-related solutions through funding, mentorship, and incubation programs.
- Harnessing Digital Technologies: Leveraging digital technologies such as remote sensing, geographic information systems (GIS), and data analytics can enhance monitoring, modelling, and decision-making in water resource management. Integrating these technologies into water systems can improve efficiency, accuracy, and transparency in water-related processes. Cyber security for large water infrastructure and digital solutions for social cohesion are also key needs.

By addressing these needs and priorities, Africa can develop a decolonised and robust water system of innovation that promotes sustainable development, resilience, and prosperity for all its citizens.

Water Day Programme Reflection Questions:

- What are the main developmental agenda's guiding action in your region?
- What are the levers for fast tracking transition to a more resilient future (science, investment , data availability, etc)

3. CHALLENGES FACING WATER RDI THAT NEED TO BE CHANGED IN THE FUTURE

Looking at the signals from the UN Conference on Water in 2023, as well as the priorities emerging from Africa, it is clear that there is an urgent need to prioritize having an agile and responsive water system of research and innovation that is able to provide decision support to institutions driving water security and service delivery, leapfrog new technologies and processes into water resources management and capitate water sector employees to respond to the constantly evolving needs of the water sector into the future.

There are however a number of challenges that will need to be overcome in driving a more agile global system of water innovation:

- **Absent or under-developed national and regional policy and strategy for water innovation:** When there is a lack of comprehensive policy and strategy at the national or regional level for water research and innovation, it can hinder the alignment of research efforts with the needs of the water sector. It can also make long-term innovation planning challenging, resulting in fragmented efforts, duplication of research, and missed opportunities to address critical water issues. It also becomes harder to leverage finance towards research as there is not a mechanism for ring-fencing budgets at the national level and providing long-term derisking/project security which is needed for private funders to come on board.

- **Lack of investment into water research and innovation:** The challenge of insufficient investment in water research and innovation is multifaceted and poses a significant obstacle to addressing water-related challenges effectively. In the developing world in particular, dependence on grants, aid, and external funders often leads to inconsistent funding streams and can create a cycle of dependency rather than fostering sustainable innovation. In mature economies with more traditional national systems of innovation in place, efforts are made to ringfence a percentage of Gross Domestic Product towards science. In the developing world this is seldom a viable option and thus alternative ways to secure reliable streams of water innovation funding must be considered.
- **Weak connections between water innovation institutions, role players and innovation users:** Effective collaboration and coordination among water institutions, funding agencies, researchers, and other stakeholders are vital for driving innovation in the water sector. Weak connections between these entities are resulting in missed opportunities for collaboration, limited access to funding opportunities, and disjointed efforts in research and innovation. It also results in innovation role players missing the mark in supporting local-level needs and weakening the legitimacy of solutions produced because end users and local communities are not part of the process. The frequently espoused failures of the science-policy and science-society interface are underpinned by the lack of connectedness described.
- **Challenges in transitioning research to full-scale, commercially viable operations:** Despite advancements in research and development, many innovative solutions and technologies in the water sector struggle to transition from the laboratory or pilot stage to full-scale, commercially viable operations. Factors such as regulatory barriers, lack of investment capital, and technological readiness are impeding the scaling-up process. Another dimension is the reality that government institutions often need to be the adopters and implementers of new innovations. To do this the procurement, regulatory and skills environment needs to be mature and agile.
- **Difficulty for water startups and businesses to gain traction:** Startups and businesses driving new innovations in the water sector often face challenges in gaining traction and market acceptance. Limited access to funding, regulatory complexities, and entrenched competition from established players can hinder the growth and success of innovative ventures.
- **Lack of specialist research and innovation skills:** A shortage of specialist skills and capacities in research and innovation constrains the development and implementation of innovative solutions in water management. Expertise in areas such as water engineering, environmental science, data analytics, and technology commercialization is essential for driving progress in water innovation. Investments in education, training, and professional development can help build the necessary talent pipeline and cultivate a skilled workforce capable of embedding innovative solutions into practice.
- **Weak systems for data strategy and analysis:** Effective water management relies on robust systems for data strategy, generation, dissemination, analysis, and decision support. Weaknesses in these systems, including inadequate data infrastructure, limited access to reliable data sources, and challenges in data integration and analysis, hinder evidence-based decision-making and innovation

Water Day Programme Reflection Questions:

In your experience and context, what are the systemic issues that hinder water RDI outputs and processes having sustained and transformative impact in achieving development goals?

4. THE LEVERS FOR CHANGE: FOCAL AREAS FOR A POST 2030 AGENDA IN WATER RESEARCH AND INNOVATION

Given the clear global call to have a focus on water research and innovation in the future, what are the key levers for change that we will need to focus on to drive an innovation led, water-resilient future? More importantly, how will the outputs of this system be practical, relevant and rapidly deployed to the implementation institutions and communities in urgent need of transformed water and sanitation service delivery?

Ultimately, what needs to be imagined is a new science-society compact. In contrast to the traditional approach of trying to build large national systems of innovation, the focus of this new social compact is on targeting specific problems, communities or locally-defined, water-linked problems and co-designing pathways for science-engaged transformative change. The efforts then are on identifying and building niches that can, over time, be scaled up to drive system level changes. This is particularly important in developing world contexts where finance and capacity is constrained, the needs are dire and highly strategic use of funding is paramount.

Water Day Programme Reflection Questions:

- In your experience and context, what are the systemic issues that hinder water RDI outputs and processes having sustained and transformative impact in achieving development goals?
- Can you provide examples of how water science has contributed to achieving aspect of your country's development transition?

4.1 TRANSFORMATIVE PROGRAMMES AND PROJECTS FOR GREATER WATER SECURITY:

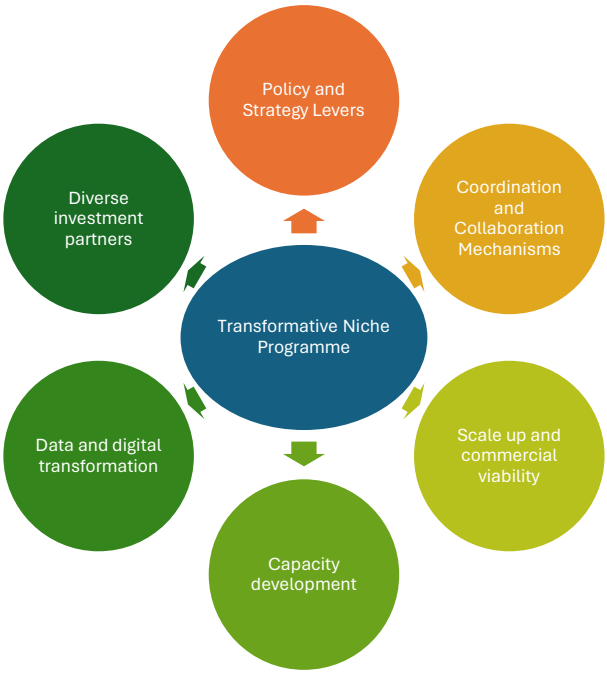
There has been a long-standing focus on systems of innovation to provide open, competitive funding that cuts across broad themes of the water sector. This has allowed different scientists and innovators to bid for funding in areas aligned to their research, solutions and skill sets and grow their careers and solutions. This model however, runs into problems in terms of generating sufficient ground swell to drive transformative change, and generating continuity of resources in terms of upscaling research and innovation into the market, etc.

An alternative model is to develop a series of much for focused research and innovation programmes or missions in niche areas that have the potential to transform specific aspects of water management or service delivery (TIPC 2024) (e.g. Alternative sanitation solutions, economic reform of the water sector, etc).

The focus is thus on designing transformative and niche programmes that radically shift and disrupt towards wider water security, resilience and adaptation. There needs to be a clear focus on societal impact and outcomes and not just incremental scientific shifts.

Strategic programmes of this nature must:

- Focus on transformative topics that sit at the nexus of multiple drivers and allow a multiplier effect in a range of sectors if successful, as this is the way that the niche gets its ground swell and scale-up potential,
- They need to create space for intentional co-creation and co-learning, over a prolonged period of time between funders, scientists, innovators, policy makers, implementers and local communities
- They need to have strong outcomes focus and an iterative, adaptable implementation model to shift with the changing needs of the sector.
- Communication and reflection needs to be built intentionally into the programmes.
- Collaborative partnership (multi-funder) resourcing models over a longer time period (5-10 years)
- They need clear long-term sustainability and resilience design approaches to ensure lasting impact beyond the implementation period of the programme
- In designing the model of the programme, the various pillars of an innovation system (described in section 4.2 – 4.7) should be drawn into the catalytic model.



Water Day Programme Reflection Questions:

- How should we be designing niche water research and innovation programmes that support transition and accelerate change?
- What have we learned about resourcing, distilling partnerships and driving long- term sustainability of transformative programmes.
- How do we monitor, disseminate results, and make the impacts of transformative programmes more visible?

4.2 A DIVERSIFIED INVESTMENT LANDSCAPE FOR WATER SCIENCE:

A diversified investment landscape is key to enabling an effective and impactful water innovation system. Unlocking sustainable water RDI investment into the future require that:

- Countries focus on unlocking a core stream of funding from national budgets. This is key to countries being able to control their own water research agenda, rather than being fully dependent on external funding and its linked priorities,
- A ring-fenced national budget for water science is a powerful acceleration tool for the water innovation ecosystem,
- Water implementation and service delivery budgets (grants and loans) should include an innovation deployment and exploratory learning component.
- Using the core national investment as a leverage point, external partner funding from the global public and philanthropic sector, development banks and other private sector partners must be added to the funding mix. Leveraging private sector investment typically requires capacity to self-assess the technical, business and market readiness of different innovative solutions as private funders typically invest at a later stage of the value chain.

With growing due diligence from all funders in the grant and commercial spaces, capacity for strong water innovation programme conceptualization, implementation and management is a key requirement for accessing resources.

Water Day Programme Reflection Questions:

- What are the opportunities for reimagining resourcing and financing of joint water sector implementation and science programmes?
- How can we unlock infrastructure budgets for science?
- How are you currently investing in water research, development, and innovation?How can we align existing financing programmes and models to support science contribution to development agendas.

4.3 AN EFFECTIVE POLICY AND STRATEGY LANDSCAPE:

Globally, countries have vastly different capacities to set up the enabling policy and institutional environments for incentivisation and resourcing of research, development and innovation. Rather than focusing on setting up large, complex national systems of innovation, where water frequently finds itself having to compete amidst a range of other science priorities; a pragmatic and fit-for-context approach needs to be taken in different countries and regions if we wish to move with speed. The core priorities need to be:

- A clear commitment, at the strategic level, to water-related decision-making that is informed by scientific evidence and supported by a governance framework,
- A commitment to growing the skills for research and innovation, and the capacities within water sector implementation institutions to absorb new solutions,
- Policy signals for unlocking core water research revenue streams from existing budgets in the sector (ring-fenced research funds/tax incentives/ service delivery grant stipulations/etc),
- A commitment to partnership between scientists, science funders, implementation and policy role players nationally and globally,
- Governance arrangements to support collaboration, coordination and investments,

4.4 A STRONGLY INTERCONNECTED, COORDINATED, AND COLLABORATIVE WATER SYSTEM OF INNOVATION:

Addressing the weak connections between water innovation institutions, role players, and innovation users requires the establishment of a strongly interconnected, coordinated, and collaborative water system of innovation. This involves fostering partnerships and collaboration among government agencies, research institutions, academia, industry players, civil society organizations, and local communities. These partnerships should prioritize knowledge sharing, resource mobilization, and joint problem-solving to address water challenges effectively. By building a cohesive ecosystem of stakeholders, developing countries can leverage diverse expertise and resources to drive innovation, implement scalable solutions, and achieve sustainable water management goals in alignment with the post-SDG agenda. Key enablers to unlock this space include:

- Clear mapping of partners within the innovation ecosystem as well as those one is trying to influence and work with locally,
- Indigenous knowledge and grassroots institutions have to be key participants in all water programmes to ensure alignment, trust and co-creation,
- Partnerships, between institutions, have to be established that are agile enough to make joint decisions about innovation selection and support in order to streamline upscaling processes.
- A circular economy approach needs to guide these collaborative connections.

4.5 TRANSITIONING RESEARCH TO FULL-SCALE, COMMERCIALLY VIABLE OPERATIONS:

Addressing the challenge of transitioning water research to full-scale, commercially viable operations requires a multi-faceted approach that focuses on shifting innovative technology and process solutions into the market. This involves leveraging both global and local solutions, with an emphasis on leapfrogging existing technologies and localizing innovations to suit diverse contexts. Ultimately, this is about science contributing to the development of a knowledge economy that is able to provide new services, products and technologies (deployed through SMMEs) that shift the water and sanitation service delivery industry.

A number of mechanisms help to accelerate this process:

- Have clear mechanisms in place for evaluating technology, business and market readiness,
- Set up a network of testbeds with implementation partners to assess emerging and proven tech (incoming and local),
- Have clearly developed independent technology validation or assessment processes to drive transparent and independent evaluation of solution performance and derisk solutions and products,
- Develop pools of catalytic funding to test solutions in multiple operating environments to support market readiness,
- Where necessary work to establish new or revised standards (working with appropriate standards authorities) to drive legitimacy, manage perceptions and risks when innovative solutions are coming onto the market,
- Map early adopters of emerging innovations

- Public officials need to work intentionally within the constraints of their public procurement models to unlock the space to partner with businesses providing novel and emerging solutions,
- Support the development of business that become the vehicles to deploying solutions into the sector

In the context of the developing world, leapfrogging global solutions and localizing innovations are essential strategies for advancing water research, development, and innovation. Developing countries can capitalize on existing advancements in water technology while tailoring solutions to meet local needs and priorities. This involves identifying best practices from within Africa and beyond and adapting them to local contexts through sensitively localized approaches. By drawing on indigenous knowledge practises and fostering a culture of innovation and entrepreneurship, developing countries can unlock the potential of homegrown solutions and promote sustainable development in the water sector.

4.6 ENSURE A VIBRANT HIGH-END SKILLS ECOSYSTEM FOR WATER INNOVATION

Cultivating a vibrant high-end skills ecosystem needs strategic thinking about the future of work (and associated skills) in the water sector and also careful balancing between specialised technical skills and the vocational career pathways that are key to the service delivery requirements of the water sector. Ultimately a skills strategy for water innovation requires a three-tiered approach.

First, the pipeline of scientists and innovators needs to be nurtured and invested in. This requires:

- Investments into postgraduates and post-doctorates to be carefully mapped against the demand for varying scarce skills in the sector and the absorbative capacity of the water sector to absorb PhDs and other specialist skills,
- Careers in science need to be well-resourced and attractive to maintain the skills base that is invested in.

Second, the pipeline of water innovation system designers needs to be cultivated. This group of people and institutions needs to be capacitated to:

- Carefully design the incentives that make careers in water science and innovation attractive, and manage the risk of brain drain amongst a group of highly mobile professionals,
- Balance investment into strategic niche programmes in relation to broader water sector research and innovation capacity building,
- Design outcomes-focused, impactful programmes and ventures that connect with the needs of the implementation partners in the sector,
- Synergise a complex water institutional landscape to be oriented towards investing in and absorbing water research and innovation,
- Explore models for funding, managing and monitoring high-impact niche programmes for the water sector.

Third, the users of research and innovation solutions need to be capacitated to engage with the research and innovation process, and position their own organisations to be able to absorb new solutions and act on decision support. This can be achieved by connecting practitioners

(municipalities, utilities, planners) with niche innovation learning and outputs through targeted training and practical exposure to sites. Artisans are also a key group who need to be exposed to novel solutions and how these can be linked to their service offerings. Community members and community leadership structures are also a key learning audience, particularly when the water or sanitation solution is decentralised and useful at the individual/household level.

4.7 FACILITATE DIGITAL TRANSFORMATION

The water sector is a data intensive sector. Well-curated data and associated decision support tools are key for the sector to be effectively understood, behave in an optimal and responsive manner, rapidly course correct when problems arise, and understand how we are performing in relation to national, regional and global standards. Digital transformation is key to the water sector staying abreast of an ever more complex world.

The water research and innovation sector has a key role to play in the future in terms of:

- Refining the tools and approaches for gathering data in (near) real-time, and in a manner that is affordable and practical for use,
- Innovating with ways to draw on citizen science more effectively as a way of amassing data and ground truthing decision making,
- Designing the training and deepening skills sets in data analytics, management and opportunities,
- Exploring the most innovative solutions for amassing and packaging data to meet the decision support needs of implementers, at the various nexus points water interacts with,
- Investing in and designing the data architecture that allows for open/appropriate access and analysis.
- Water systems related cyber security needs to be explored

5. HIGH LEVEL PRIORITY THEMATIC AREAS FOR WATER INNOVATION

Having understood the architecture of the society oriented water system of research and innovation we need to build towards globally, the task of defining the transformative water sector niches that will leapfrog us to a more sustainable, resilient and responsive water sector of the future remains the common work of the global community.

It is clear already that the world will be left with much still to achieve post 2030, particularly relating to the water and environment development goals. The process of prioritizing these new transformative tipping points will be guided by:

- Gaps in SDG and regional development plan implementation (who has been left behind?),
- Identifying the contemporary issues that have emerged in the last 10 years that must now be prioritized,
- More effectively managing the interlinkages between the various development goals and the reality of water being a nexus point/connecting thread through these goals.

Based on the emerging signals we are seeing from Africa's engagement with the world in terms of water service delivery needs, and current challenges facing the implementation of the SDGs, there are already two areas that we know will need to be prioritized post-2030 by the Water RDI ecosystem.

5.1 THE RE-IMAGINED DRINKING AND SANITATION SERVICE DELIVERY FUTURE

A programme for re-imaging the service delivery paradigm for drinking water and sanitation service delivery into the future is essential. This will be about imagining a more resilient and effective future for delivering drinking water and sanitation to homes, in a way that is not only focused on addressing the unserved/poorly served populations of the world, but drives collective reimaging, for all people, about what dignified service delivery looks like.

Key focal points in this programme will include:

- Drinking water service delivery (including decentralised systems)
- Diversifying source water supply systems
- Multiple use services of water to enhance energy and food security
- Alternative and non-sewered sanitation
- Reimagining the top down, centralised bulk service delivery model to look at more locally owned and resilient approaches
- Landscape management, water quality and its intersection with bulk infrastructure and service delivery options
- Smart monitoring and innovation in payment models.
- Water quality management and tracing

A programme of this nature is ideally led by Africa. As one of the areas of the world with the furthest to go in terms of WASH service delivery, as well as a particularly vulnerable climate in terms of predictability of water supply under a changing climate; Africa is already thinking about this alternative future. Innovation is a necessity and it drives every day thinking of the research and service delivery communities of the water sector.

5.2 WATER NEXUS DECISION SUPPORT

The SDG process, with its multiple nexus points between the various goals, has highlighted our global struggle in terms of making informed and transparent decisions at the nexus point between issues. Nexus point decision-making ultimately becomes and game of strategic trade-offs. These trade-offs (often with long-lasting developmental consequences) can be better justified and more carefully made if supported by effective nexus decision support data and tools.

Water is a particularly profound starting point for a programme in deepening nexus analytical capabilities as it is an inherent cross-cutter through most SDGS and developmental priorities in general.

A programme for water nexus decision support would need to rest on 3 pillars:

- First, the programme would need to dramatically expand the global capacity pool and decision support tool kit for nexus decision-making. This tool kit would need to be designed in a way that can simultaneously make the economic, social, environmental and political trade-offs of water-linked nexus decisions apparent, and in so doing be able to clearly surface the social implication of different priorities and actions.
- Second, the programme would need to focus on the architecture (indicators, data, systems) that would allow for effective developmental goal analysis and decisions on trade-offs. This implies grappling with what indicators are appropriate for tracking water-related developmental progress, what is the most effective way to amass data on these indicators in the long term and how are issues of quality, standardisation and open data to be dealt with.
- Thirdly, the opportunity of data analytics and artificial intelligence would need to be explored as a tool supporting both the data components of the programme and also the coding of decision support tools and trend analysis.

These two areas are by no means an exhaustive list of the niche programmes that will need to be explored by the water research and innovation sector in a transition to the post-SDG agenda. They simply become part of the working pool of recommendations for shaping the niche thematic priorities going forward. What remains key is the need to design these niche programmes across the pillars of an optimally functioning water system of innovation that has been unpacked in this paper.

Water Day Programme Reflection Questions:

If you could imagine one transformative research and innovation water programme that would help to tip your society to a more sustainable future, what would that be?

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