

Welcome Note

As we progress into 2020; it's a time to reflect on progress made towards goals and targets set for 2019 in general and Phase IV in particular. WaterNet wishes to thank all members, partners, and stakeholders who contributed to the success of the network in 2019. The WaterNet Management Board calls on all members to work together in order to ensure the success of Phase IV which will run up to the end of 2021.

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The 20th WaterNet/WARFSA/GWP-SA Symposium was successfully held at the Indaba Hotel, Spa & Conference Center, Fourways, Johannesburg, South Africa, 30th October – 1st November 2019. The theme for the Symposium was “Integrated Water Resources Development and Management: Leaving no one Behind for Water Security in Eastern and Southern Africa”

The annual Symposia remains a platform for water professionals to share advances in research and education related to Integrated Water Resources Management in the Eastern and Southern African regions and beyond. Water professionals concerned with the sustainable use and management of water regard this as a key annual event. To date, 20 Symposia have been organized attracting an average 400 water professionals.

Symposium 20's programme, just like in other years consisted of scientific presentations highlighting the latest research achievements as well as more general conceptual papers and special sessions .

Symposium 20 was officially opened by the Deputy Minister of Human Settlements, Water and Sanitation, Honourable David Mahlobo >>>Page 4

Message from the WaterNet Trust Chairperson



As we progress into the third decade of the 21st Century, I would want to wish all of you good health and prosperity in all that you are doing. I am overjoyed by the fact that the network has been in existence for the past 21 years after having been formed in Victoria Falls, Zimbabwe in March 1999 by a group of 22 men and women who saw and visualised the need for human capacity building in integrated water resources management in Southern and Eastern Africa. Their vision and mission has taken the network thus far. Looking back, we can say the founding of WaterNet was worthwhile. Looking forward, we can say we have the momentum and potential to advance the WaterNet cause.

Let us all take a moment to remember those founding WaterNet members who have passed on over the years. Though they are gone, they left us with a memorial which

enables us to always remember them in our hearts. May their souls rest in eternal peace

I would like to sincerely thank the Government of the Netherlands for its unwavering support to WaterNet. The WaterNet Trust partly owes its existence to the generous support it has consistently received from the Government of Netherlands. Through this support, WaterNet has facilitated capacity building of more than 500 students through the Regional Masters Degree Programme in Integrated Water Resources Management. I am enthused by the fact that the WaterNet Alumni is playing a key role in water resources management in Southern and Eastern Africa regions. WaterNet Alumni are engaged in senior government positions, academia, consultancy and development organisations. More interestingly is the fact that two WaterNet Alumni, Prof Cosmo Ngongondo and Dr Joel Kabika were elected to the WaterNet Trustees Board at the 20th Annual General Meeting held at the Indaba Hotel, Spa and Conference Center, Johannesburg, South Africa. With this rich diversity in placements of our alumni, I urge them to be true ambassadors of WaterNet and participate in sustainability options for WaterNet so that we can carry on with the wonderful programme and continue to churn out relevant cadres to transform water management in the region.

WaterNet is also grateful to all the other partners who have come in at different times to fund specific programmes over the last 21 years enabling WaterNet to undertake research projects and short professional courses. These include the Swedish Development Agency, the British and German Governments through the delegated authority of GIZ, United Kingdom Research and Innovation, the European Union, to mention but a few.

I would also like to thank the membership for its unwavering support which they have rendered to the network over the last two decades. It is satisfying to note that the network has grown from an initial membership of 20 to over 80 now. However, we need to ensure that members become more involved in fulfilling the vision and mission of the network. It is good to note that the membership of the network has now diversified to include non-academic institutions in the water sector. There is, however, more that needs to be done in order to attract more membership from Francophone and Lusophone countries.

WaterNet is very much indebted to the SADC Secretariat in general and the SADC Water Division in particular which has rendered its full support to the network over the years. Through this association with SADC there is great potential to explore and engage other partnerships at the global level.

Our traditional cooperating partners which include IHE-DEFT, the University of Twente, GWPSA, IUCN and WWF have played key roles in ensuring that the network fulfils its mandate in education, research, short professional courses and outreach. We look forward to stronger cooperation with these partners as we wind up Phase IV and strategize for Phase V of the WaterNet programme. The network has a huge task to secure funding for its different activities planned for Phase IV. I am therefore appealing to members to continue to play a key role in fundraising. WaterNet will be exploring all possible channels to approach SADC Member States to honour their pledge to support capacity building in the Water Sector. The challenges in the water sector are many and varied and will require well trained practitioners and research to develop regional solutions for our regional problems.

I wish all of you a happy and successful 2020.

20th Symposium Opening Ceremony

The opening ceremony of the 20th Symposium was attended by over 300 delegates who included participants to the symposium as well as invited guests from various government Ministries and organisations from South Africa.



The Dean of the Faculty of Engineering at the University of Johannesburg, Prof Debra Meyer gave the welcoming remarks on behalf the University. She welcomed all the participants to Johannesburg and to the 20th WaterNet/WARFSA/GWP-SA. Prof Debra Meyer further highlighted that UJ was particularly proud to be hosting the event for the second time in a decade. She said that “On behalf of the University of Johannesburg, I would like to express our continued support to the annual Symposia as it is one strategy aimed at promoting sustainable water resources management in the region. I hope that for the next three days, evidence-based research findings and thought-provoking discussion papers will be shared among delegates.”

Prof Debra Meyer also highlighted that it was gratifying to note that the 2019 Symposium coincided with the 20th anniversary of the formation of WaterNet. She said in the 20 years of its existence since 1999, WaterNet has been able to spearhead water related programmes and projects through education, short professional courses, multi and interdisciplinary research, and outreach, which all lead to a realisation of SADC developmental goals.

Prof Debra Meyer further stated that UJ’s Vision includes the impact of the 4th Industrial Revolution (4IR) on the economy, citizens, society and the state, as well as the role of higher education, the future of work and inequality as the critical issues that the University would like to interrogate and contribute towards. She said “as UJ we have positioned ourselves as a leading Pan African University of choice with a global stature, forging ahead with its strategic role to shape the future of South Africa – in partnership with government and industry leaders. It is note worth that UJ is pioneering in Water Resources Management in the Fourth Industrial Revolution”.



The Chairperson of the WaterNet Trust, Prof. Hodson Makurira highlighted that he was “extremely delighted and humbled to stand before you at this historic 20th WaterNet/WARFSA/GWPSA Symposium. This year’s event marks 20th times in a row that the symposia have been held in Southern and Eastern Africa. On behalf of the WaterNet Management Board and, indeed, the whole WaterNet family, I sincerely thank and appreciate all organisations and governments that have been involved in the planning of the annual symposia since the year 2000. While we are gathered here for the 20th Symposium, we are also celebrating the 20th existence of WaterNet which was founded in 1999 in Victoria Falls, Zimbabwe, by a group of men and women who saw the need to hatch a capacity building initiative in IWRM in Eastern and Southern Africa. I want to humbly appreciate the vision and mission of these men and women. Twenty years on, we have many success stories surrounding WaterNet and it is more pleasing that some of those founding members are present here to celebrate two decades of WaterNet’s existence with us today”.

Prof Makurira thanked the University of Johannesburg for hosting the historic 20th symposium. He stated that he was well aware of the sacrifices that go into the preparations of such a high profile event. He was very confident that the Local Organising Committee, the International Scientific Committee and WaterNet Secretariat worked closely to craft an exciting three day programme that was both exciting and enriching

He further highlighted that “as we celebrate the 20th anniversary of the symposia, let us take time to reflect more on the contributions of WaterNet to human capacity building in general and the annual symposia in particular. We will strive to share research outputs and knowledge products in various ways so as to lift high the WaterNet flag on the global arena”.

He concluded his addressing by wishing all the delegates a memorable 20th Symposium.

20th Symposium Opening Ceremony



The 20th WaterNet/WARFSA/GWPSA Symposium was officially opened by the Honourable Deputy Minister of Water & Sanitation – Mr. David Mahlobo. The Honourable Deputy Minister thanked WaterNet, WARFSA, GWPSA and the University of Johannesburg for successfully organizing the event. He went further to note the importance of water in social, economic and environmental wellbeing. He highlighted that the scarcity of water in different parts of the world has far reaching consequences which include conflicts at community level, migration leading to the disintegration of communities. The Deputy Minister emphasized the importance of discussing how different stakeholders can be included in search for solutions related to addressing water scarcity. One important stakeholder he singled out are the local communities which are mostly affected by water insecurity. He emphasized that in whatever that is discussed during the symposium, “let us not leave communities behind. Leaving communities behind is one thing which exacerbates water scarcity and conflicts. Communities possess certain knowledge and skills which can play a critical role in finding the solutions that we are searching”.

The Honorable Deputy Minister ended his speech by wishing the participants fruitful deliberations



The keynote address for the 20th Symposium was delivered by Prof Jacqueline King. Her presentation was entitled “Some (water) for all.” In her presentation she emphasized that water security encompasses water quantity, quality, reliability of supply and availability of the resources. Rivers across the world play an important role in ensuring these different dimensions of water security. She noted that there are environmental, social, and economic costs associated with non flowing rivers and those with poor quality water. For example, drinking water sources for humans and animals disappear while an entire economy can be negatively affected as generation of hydro-power fails.

Prof. King stressed that there is need to ensure environmental flows in our rivers as these are systems that support us. Professionals from different disciplines are key in ensuring environmental flows, e.g. engineers, hydrologists, conservationists, water managers, planners and social scientists. Environmental flows need to focus not how much water a particular river needs and of what quality. Such an analysis when implemented help in establishing the link between flow and species and ecosystems health and livelihoods.

Prof Jackie King who is also the Stockholm Water Prize Lauret for 2019, said that using her prize money, she is interested in working with governments in the SADC region to start including ecological-social modelling in the earliest stages of basin planning and decision-making. She emphasized that it is important for us to properly look after our rivers and wetlands so that they can also look after us. It is also vital to manage change which happens to river systems as a result of development.



20th Symposium Opening Ceremony

The 20th Symposium was attended by some of the WaterNet founding members who include Prof. Alaphia Wright, former WaterNet Chairperson, Prof. Akpofure Taibgenu, Prof. Zebediah Phiri, Prof. Damas Mashauri, Prof Frank Kansime, Prof Pieter Van der Zaag and Prof. Ron Thebeyane Chaoka. Prof. Alaphia Wright gave a historical perspective on how the process of founding WaterNet took place. He said the process started around 1997 when a project document was put together. This document was in line with what the Government of the Netherlands subscribed to in terms of water management which provided a four year project grant. The launching workshop of WaterNet took place in March 1999 in Victoria Falls, Zimbabwe. The founding members were very clear in how they envisioned water resources management which should not be seen only from an engineering perspective, but from different dimensions, i.e. environmental, social and economic. Thus, one of the aims of WaterNet was to make the larger society understand the need for integrated water resources management. Through WaterNet's programmes, over the past 20 years, there is now a deeper understanding of the concept of IWRM and also knowledge and skills in this area have been enhanced. The vision of WaterNet has mainly been to enhance water security, thus having water available in both quantity and quality for present and future use. "We should not, thus, compromise the needs of future generations in our quest to achieve water security. The idea has been to make integration of disciplines involved in water management stronger".



Prof. Alaphia Wright



Prof. Caliphs Zvinowanda, the Symposium 20 LOC Chair



Participants following proceedings during the official opening ceremony

20th Symposium: Scientific Plenary Session

The 20th Symposium Scientific Plenary which took place on the morning of the 31st October 2019 was dedicated to celebrating the 20th Anniversary of WaterNet and the Symposia. Presentations were done by people who have been associated with both WaterNet and the symposia over the last 20 years.

The first presentation was done by Prof Pieter van der Zaag who is a WaterNet founding member and the first Manager of the network, 1999—2002. He presented on the “Coming of Age of WaterNet: A reflection of the Past, Present and Future”. He highlighted that over the last 20 years WaterNet has grown up into a powerful actor within the water sector in the SADC region. He said, personally to him, being associated with WaterNet from its inception in the 1990s, has been a life changing experience which shaped his perspective of how he views the world. Over the last 20 years, he has had the opportunity of teaching and supervising WaterNet students many of whom are now contributing to the sustainable management of water resources mainly in the SADC region and beyond. Through its programmes which have been highly successful over the last 20 years, WaterNet is thus creating its future. A number of WaterNet Alumni have gone on to be decision makers across the region and some are heading regional organisations. He concluded by highlighting that it is difficult to imagine the water sector in the SADC region without WaterNet.



Prof Pieter van der Zaag

Dr Themba Gumbo who was the WaterNet Manager from 2005—2008 gave his Reflections on the contributions of WaterNet Programmes in enhancing IWRM in the SADC region and beyond. The presentation by Dr Gumbo mainly focussed on the Symposia that he presided over between 2005—2008. He noted that there has been remarkable improvement over the years in the way the symposia are organised in terms of quality of presentations and outcomes of the events. The fact that the symposia have been held consistently over the last 20 years shows that this is an important event on the water sector calendar.



Dr Themba Gumbo

Ms Joanna Fatch the former Chairperson of the WaterNet Alumni Association presented on the WaterNet Alumni's role and contribution to Capacity Building in IWRM in the SADC and East African regions. She noted the contributions which have been done by the over 500 graduates of the Regional Masters Programme in IWRM in enhancing water resources management in southern and east Africa.



Ms Joanna Fatch

Prof. Dominic Mazvimavi presented on the Reflections on the “Scientific Successes, Challenges, Gaps of the Symposia since 2000 and the way forward”. Prof Mazvimavi highlighted how the symposia have over the years been able to attract participation of a diverse nature who include academics, development practitioners and policy makers. The symposia has enabled the following over the years:

- Providing a platform for young scientists from southern and eastern Africa to be able to present their research findings and get crucial feedback from the senior academics.
- Show casing recent developments in the water sector like river surveying using drones
- Debate emerging issues, e.g. environmental flows for non flowing rivers
- Taking account within the WaterNet network on what would have transpired during the previous year.

Oral presentations during the symposia have risen from 30 in 2000 to over a hundred in recent years. Out of the symposia has come a lot of journal publications in the Journal of Physics and Chemistry of the Earth.



Prof. Dominic Mazvimavi

20th Symposium: Scientific Plenary Session

During the Scientific Plenary, Prof Jean-Marie Kileshye Onema presented on the “Capacity Building for Water Resources Management: Achievements and future Perspectives from WaterNet”. The presentation started by appreciating the WaterNet founding members, both living and departed. Specific mention was made of the then Prince of Netherlands, Willem-Alexander who has since ascended to the throne as the King of the Netherlands, who attended the founding Workshop of WaterNet in Victoria Falls Zimbabwe.



The then Prince Willem-Alexander, in striped blue, white and red t-shirt

Prof Onema highlighted that, WaterNet is currently implementing its Phase IV, 2017–2021 focusing on “Strengthening capacity to co-create regional water solutions in a changing environment”. The presentation stressed on the achievements of WaterNet over the 20 years of its existence in education, short professional courses, research and outreach. Prof Onema thanked the different funders who have supported WaterNet since its formation, these include the Government of the Netherlands through the Directorate-General for International Cooperation (DGIS), the Swedish Development Association (SIDA), Danish Development Agency (DANIDA) and member subscriptions. The presentation ended by reflecting on the Phase V which will start in 2022.



Prof Jean-Marie Kileshye Onema

During the 20th Symposium, WaterNet signed two Memorandum of Understandings (MoUs) with the NEPAD Southern Africa Water Centres of Excellence (SANWATCE) and the Water Research Commission (WRC). Prof Jean-Marie Kileshye Onema, the Executive Manager of WaterNet and Dr Nico Elema of SANWATCE was signed an MoU representing their respective organisations on 30th October 2019.



Prof JM Kileshye Onema and Dr Nico Elema after signing the MoU.

The MoU between WaterNet and WRC was signed on 31st October 2019. Mr Dhesijen Naidoo, the Chief Executive Officer of WRC represented his organization while Prof. Onema represented WaterNet during the signing Ceremony.



Mr D. Naidoo and Prof JM Kileshye Onema after signing of the MoU

The two MoUs signed are meant to enhance cooperation in different areas of IWRM which include the following:

- Human capacity development through furthering education, training and undertaking joint research;
- Contributing to the SADC Human Capacity Development Plan;
- Contributing to the SADC Research Agenda
- Collaborating in hosting events, dialogues, conferences and symposia.

20th Symposium in Pictures



Delegates registering for the 20th Symposium



Members of the WaterNet Alumni Association attending Symposium 20



Delegates follow proceedings during the official opening ceremony



The South African Deputy Minister of Human Settlement, Water and Sanitation, with WaterNet Board and Founding Members



Closing Gala dinner

20th Symposium: Summary of Sessions

The 20th symposium had a total of 28 planned sessions, of which 4 were plenaries, 16 thematic sessions and 10 special sessions.

Plenaries included the opening, scientific and closing Special sessions, the following special sessions were convened by various institutions:

- **The Present and future of alluvial aquifers as nature-based solutions for enhancing rural livelihoods in (semi) arid Africa.** Convenor: IHE Delft Institute for Water Education and partners
- **Brokerage Roadshow: Social Innovation and IWRM in the face of climate change.** Convenor: AfriAlliance.
- **Water-Energy-Food (WEF) Nexus Policy Dialogue.** Convenor: Global Water Partnership (GWP), the HELP and Japanese government
- **Innovation and appropriate technologies for reaching the impact in WASH programming: Leaving no one behind.** Convenor: World Vision
- **Water Research Fund for Southern Africa; A conversation on funding regional collaborative research.** Convenor: NEPAD SANWATCE and WaterNet
- **Mapping and protecting Water Resources Protection Areas for Zambezi River Basin Water security.** Convenor: World Wide Fund – Zambia
- **Addressing food and water security challenges in sub-Saharan Africa using collaborative and interdisciplinary research.** Convenors: BRECCIA
- **FAO portal to monitor Water Productivity through Open access of Remotely sensed derived data (WaPOR).** Convenor: IHE Delft Institute for Water Education
- **Operationalizing the Water-Energy-Food Nexus Special Session.** Convenor: International Water Management Institute
- **Ecohealth International.** Convened by the University of KwaZulu Natal

	Sub-theme	Presentations		
		Planned	Actual	YS
1	Changing hydro-climatic regimes and planning tools for climate resilient pathways	28	22	15
2	Water, Land, Energy and Agriculture	19	18	8
3	Water, Ecosystems and the Environment	29	29	15
4	Innovative approaches, practices and technologies for affordable water supply, and sanitation services	30	25	15
5	Water governance for sustainable, equitable and affordable water services	12	10	9
Total		118	104(88%)	62

YS = Young Scientist

Summary of Emerging Issues by oral theme

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

- Understanding hydrological processes, groundwater-surface water interactions and climate change impacts
- Value of global datasets and remote sensing in planning & management.
- Incorporating climate change and land use impacts in water resources planning and investments in installation and maintenance of monitoring stations for disaster management.
- Investments in technology for data monitoring & management and water availability assessments.

Water, Land, Energy and Agriculture

- Use of Remote Sensing (RS) and GIS to map and understand impact of anthropogenic activities such as land degradation, land cover changes
- Irrigation as the most promising approach to improve food/crop production under climate change
- Need to improve understanding of agricultural hydrology (evapotranspiration, evaporation, etc.), water use efficiency in agriculture and soil quality assessment.
- Ways of building resilient small-scale farming communities against contemporary challenges some of which are political and climate change & variability

Water, Ecosystems and the Environment

- Pollution remains a big challenge for surface water, groundwater and soils
- Need to invest in affordable and effective technologies to deal with widespread issues of water and wastewater treatment to make water available to our societies
- Energy demands at treatment plants is a problem that seeks innovation to solve energy problems.
- Scientific work (in labs) should be translated to affordable practical solutions to solve societal water problems

Innovative approaches, practices and technologies for affordable water supply, and sanitation services

- Presence of heavy metals and antibiotic resistant bacteria in freshwater resources threatens human health
- Need to invest in low-cost but efficient technologies to remove pollutants from water sources
- Need to assess the practical application of technologies outside the laboratory
- Data on access to water and sanitation needed for targeting necessary interventions

Water governance for sustainable, equitable and affordable water services

- Need for the use of models to understand water security challenges.
- The role of household demographic and socio-economic factors need to be investigated to understand water demand patterns
- Management of Non-Revenue Water (NRW) is crucial for water security
- The role of IWRM in water governance needs deeper interrogation

Lewis Jonker Award for the Best Presentation by a Young Water Scientist

The winner of the 2019 Lewis Jonker Award for the Best Presentation by a Young Scientists at the 20th Symposium is Bongakonke Nkosinathi Makhanya an MSc. Candidate in the Department of Biochemistry and Microbiology at the University of Zululand.






Bongakonke presented a paper in the Ecosystem, Water, and Environment sub-theme, entitled: The effect of green microalgae in heavy metal removal from industrial wastewater.

The presentation focused on heavy metals which are the major causes of water pollution and the threat to the community. Most industries in South Africa discharge wastewater with high concentrated heavy metals which results in water pollution. Currently, conventional wastewater technologies or treatment techniques are used in industries to treat wastewater, yet water pollution is still being experienced. Therefore, the study looks at the alternative, biological, efficient, and environmentally friendly ways to remove heavy metals from industrial wastewater. This is achieved by using microalgae isolated from the fish pond, which has been proven to have the ability to bind and absorb heavy metals based on the obtained results in the study.

Bongakonke was honoured to be awarded the Lewis Jonker Award at the 20th Symposium. According to him, “This award is particularly meaningful to me because one of the reasons I pursued my studies in wastewater treatment was to protect the public through improving the water facilities since South Africa is facing a water crisis. This award is a motivation that pushes me to continue researching more on alternative ways on how to improve as a country and the world in the water sector. The award will always be a reminder to me that more work is still required in the water sector. I would like to thank all the organizers of the 20th WaterNet symposium for this great opportunity and indeed we are all growing research-wise in the water sector.”



Young Scientists Winners of Various Categories

Theme	Winner	Picture	Intuition	Title of Paper
Changing hydro-climatic regimes and planning tools for climate resilient pathways	Cedrick Mulo-wayi		University of Dar es Salaam	Modeling groundwater flow under chaotic urbanization constraints in Kinshasa Capital Region (D.R. Congo)
Water, Ecosystems and the Environment	Bongakonke Nkosinathi Makhanya		University of Zululand	Heavy Metals Removal by Microalgae Biofilms from Industrial Wastewater
Water, Land, Energy and Agriculture	Hillary Mugiyo		University of Kwa-Zulu-Natal	Multi-criteria land evaluation for suitability analysis of neglected and underutilized species in South Africa
Innovative approaches, practices and technologies for affordable water supply, and sanitation services	Nyiko Maurice Chauke		University of Johannesburg	Utilisation of zeolite polyether-sulfone membranes in salt water rejection
Water governance for sustainable, equitable and affordable water services	Tavengwa Chitata		Midlands State University	What else does command agriculture do? Expropriating livelihoods, social capital and water governance
Water governance for sustainable, equitable and affordable water services	Dipuo Kgabi Precious		University of Johannesburg	Quantification and Thermo-desorption Studies of Mercury in Water and Sediments from Mokolo River, Limpopo Province, South Africa

Regional Masters Programme in IWRM, 2019/20 Intake

The Regional Masters Degree Programme in IWRM remains central in WaterNet's activities. The call for applications for programme continue to attracts more applications than the network can support. High calibre applications are received from across the region. For the 2020/21 intake, 180 applications were received, but only about 5% of these can be funded. This calls for the active involvement of our Southern African Development Community (SADC) governments to actively fund nationals their countries to undertake this programme. The high number of applications received shows that the programme is on high demand across the region. It is also high time the network engages the private sector within the region regarding possible funding of scholarships for the Regional Masters Programme in IWRM. A strategy for engaging the private sector is required and suggestions from members of the network are welcome.

Out of the Ten (10) applicants recommended for the admission into the MSc program within the Departments of Civil Engineering at the University of Zimbabwe, seven have already enrolled and started lectures. The 10 candidates were considered from the 23 shortlisted candidates. Successful applicants will be sponsored through the WaterNet Fellowship Fund.

Details of the successful applicants for 2020/21 MSc in IWRM intake are provided in the table below

Lectures at the University of Zimbabwe started on 24 February 2020. However, due to the spread of COVID-19, the university was closed on the 7th March 2020. Due to the closure of the University, the MSc in IWRM students had to return to their home countries in the meantime.

Surname	Name	Sex		Specialisation	Nationality	Host Institution
Chisero	Malvern Wellington	Male		Water Supply and Sanitation	Zimbabwe	UZ
Dhlahla	Ntombikayise Thobeka Phumelele	Female		Water and Land	Swaziland	UZ
Mokhesuoe	Fusi	Male		Water Resources Management	Lesotho	UZ
Tatire	Evelyn	Female		Water and Land	Zimbabwe	UZ
Shikongo	Panduleni Lamanguluka	Female		Water Supply and Sanitation	Namibia	UZ
Tsabadze	Xolile Cynthia	Female		Water and Environment	Swaziland	UZ
Tshitende-Kakanda	Eric	Male		Hydrology	DR Congo	UZ

PROJECTS: LAUNCH OF THE BUILDING RIVER DIALOGUE AND GOVERNANCE PHASE IV (BRIDGE-IV): 2019-2021 IN THE BUZI, PUNGWE & SAVE BASINS (BuPuSa)

The International Union for Conservation of Nature (IUCN) has been implementing the Building River Dialogue and Governance (BRIDGE) Programme in America, Africa and Asia funded by the Swiss Agency for Development and Cooperation. The goal of BRIDGE is “Securing sustainable management of water resources for poverty reduction, nature conservation, economic growth and international cooperation through effective water governance”, (<https://www.iucn.org/theme/water/our-work/current-projects/bridge>). The programme supports capacity development for countries sharing rivers or lake basins to enhance effective water resources management through a shared vision, benefit-sharing, transparent and coherent institutional frameworks. The initial phase of the BRIDGE programme (BRIDGE 1) ran from February 2011 until March 2013.

BRIDGE IV for the Buzi, Pungwe and Save (BuPuSa) basins was launched on 5 December in Manica Mozambique. BRIDGE IV will continue building on the progress made in previous phases in the Buzi/Pungwe/Save (BuPuSa) and Lake Malawi/Nyassa/Niassa (LMNN). Further, it will aim at supporting the implementation of the region’s water cooperation frameworks particularly through the Southern African Development Community and its instruments i.e. the SADC Water Policy (2005) and SADC Protocol on Shared Watercourses (2000), to improve water cooperation, peace and investment in the region and promote the replication of BRIDGE approaches in the river basins governed by regional SADC agreements.

Mr. Hillario Pereira, who was heading the Mozambican delegation, remarked that as Mozambique, they welcome the BRIDGE project as it is meant to strengthen cooperation between Mozambique and Zimbabwe in the area of transboundary water resources management. He noted that there was a clear history of transboundary water resources management between Mozambique and Zimbabwe in the Buzi, Pungwe and Save river basins. This cooperation was enhanced by the establishment in 2002 of the Mozambique-Zimbabwe Joint Water Commission. He noted that while the bilateral agreements for the Pungwe and the Buzi basins have been signed, the Save Bilateral Agreement was being finalized and will hopefully be signed in the near future. Mr Pereira highlighted that BRIDGE IV should come up with recommendations that enhance cooperation in the management of the three shared rivers basins.

Mr. Gilbert Mawere who was heading the Zimbabwean delegation expressed gratitude to IUCN, WaterNet and the Government of Mozambique for their support of the BRIDGE project as it presents an opportunity to strengthen cooperation in managing and sharing the Buzi, Pungwe and Save Basins. He expressed hope that the BRIDGE IV Project, will implement recommendations of the BRIDGE III Project. IUCN, GWP and WaterNet were thanked for facilitating dialogue between the two States. Mr Mawere highlighted that water resources management is supposed to ensure that all citizens have access to water for domestic and agricultural uses. It is important that water resources management takes into account the need to provide adequate water for supporting riverine ecosystems.



ENVIRONMENTAL FLOWS CAPACITY BUILDING IN ZAMBIA

WaterNet in partnership with the World Wide Fund for Nature (WWF), Zambia's Freshwater Programme and the University of Zambia are implementing a project on building capacity for undertaking environmental flow assessments in Zambia. WaterNet is providing the expertise for the training, WWF Zambia is providing funding and the trainees consists of staff from different disciplines from the University of Zambia. The project aims to embed environmental flows in teaching at the University of Zambia at undergraduate and post-graduate levels. The following are the objectives of the initiative:

- “To design an environmental flows module tailored to the local context and in-country expertise to deliver the module;
- Engage key stakeholders to ensure the capacity building module is relevant, has stakeholder buy-in and is contributing to addressing the capacity gaps in the sector around environmental flows, water and environmental security;
- To pilot the deployment models for the module in consultation with a local university; and,
- To design a long term financial sustainability plan for the module, that should also include WWF's exit strategy”, (WWF Zambia, 2019)

Apart from having environmental flow being embedded in the teaching at the University of Zambia, the project will also build a critical mass of experts who can undertake and train professionals from different organisations in Zambia on environmental flows assessments.

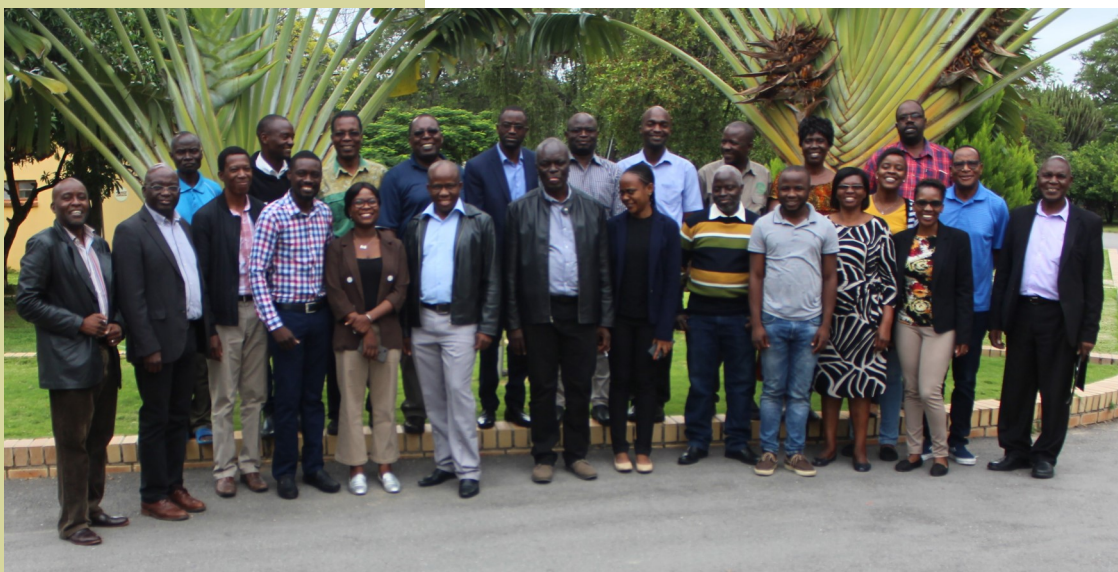
In order to achieve the above, a planning was held in December 2019 which identified the following:

- Objectives of the WWF Environmental Flows Assessment Capacity Development Initiative
- Overview of the environmental flow assessment process.
- Experiences in assessing and implementing environmental flows in Zambia.
- Assessment of the adequacy of existing training on environmental flow assessment in Zambia.
- Options for overcoming training gaps on environmental flow assessment in Zambia.

A three day workshop attended by a total of 22 participants was held from 3-6 March 2020 in Kafue Zambia where participants went through following:

- Characterisation and assessment of land use and land cover changes that impact on environmental flows.
- Delineation of the river basin into homogenous zones and selection of environmental flow assessment sites.
- Identification of types of data, required for environmental flow assessment, and data collection techniques.
 - This data includes hydrologic, hydraulic, geomorphic, water quality, aquatic fauna, fish, macroinvertebrates, riparian and aquatic plant and socioeconomic.
- Field Exercise – Demonstration of Data Collection Techniques

Participants will go into the field to collect the different types of data, analyse it during a workshop, develop a report and module outline.



AfriAlliance and BRECCIA Projects

AfriAlliance news

In February 2020, the AfriAlliance team, including members from WaterNet met at the 20th African Water Association (AfWA) Conference and Exhibition which took place in Kampala, Uganda. AfriAlliance hosted three sessions at the congress including the fourth Innovation Bridge Event. The AfriAlliance Innovation Bridge Event aims to serve as a matching platform for universities, science councils, decision makers, government and companies in water and climate change with potential collaborators, funders and investors to facilitate commercialization, awareness and better uptake of their innovations. The session was held under the theme: "Innovations for Climate Challenges in Accelerating Universal Access to Water and Sanitation in Africa". The event attracted water and climate innovators, academics and researchers, students, policymakers and investors in Africa. The session was a stimulating interactive event that showcased 11 innovations and a panel discussion where Professor Jean-Marie Kileshye Onema and other experts from African Development Bank and Lilongwe Water Board discussed the bottlenecks around uptake of innovation.



Panel discussion at the fourth Innovation Bridge event in Kampala, Uganda.

Building Research Capacity for Sustainable Water and Food Security in sub-Saharan Africa (BRECCIA) news

WaterNet teamed up with University of Southampton and University of Malawi to model crop yield and yield gap of maize in Sub-Saharan Africa at fine spatial scale and to further understand drivers of productivity gap under different socio-economic and biophysical environmental contexts. Understanding the drivers of poor productivity will aid in identifying solutions to improve food production and ultimately food security. The team is transdisciplinary consisting of researchers with a background in agronomy, geography, hydrology and social sciences. Hydrological and crop models are being coupled with earth observation data to estimate crop yield at fine spatial scale. During the 2019/20 cropping season the team embarked on collecting field data and socioeconomic household data in 150 farmers' fields in the lake Chilwa basin in Malawi. In addition, maize experimental trials are being conducted in Malawi and Zimbabwe. The research will help improve food security at household level.



Maize experimental field in Malawi

LET US ALL BE SAFE OF THE CORONA VIRUS



Human Settlements
Water and Sanitation



WATER
RESEARCH
COMMISSION

KEEP SAFE AND VISIT

www.wrc.org.za for more information

ABOUT CORONAVIRUS DISEASE (COVID-19)

Coronavirus disease (COVID-19) has been declared a pandemic by the World Health Organisation.



ISOLATED IN WUHAN, CHINA
IN JANUARY 2020



SERIOUS COVID-19 INFECTIONS
RESULT IN PNEUMONIA



CURRENTLY THERE ARE NO VACCINES

SYMPTOMS

SHORTNESS OF
BREATH

FEVER

DRY COUGH

HOW SOAP AND WATER HELPS AGAINST COVID-19:

The coronavirus consists of RNA in a package of protein and FAT. Fats are very easily dissolved in SOAP! By washing your hands with soap, you are breaking down the virus.

PREVENTATIVE MEASURES:



WEAR A MASK TO
PREVENT SPREAD
OF GERMS



WASH HANDS
WITH SOAP
AND WATER



NO PHYSICAL
CONTACT



SNEEZE AND
COUGH INTO A
TISSUE OR YOUR ELBOW



USE HAND
SANITISER



PROTEIN
RNA
FAT

ENSURING SAFE WATER AND SANITATION

To date, there is no evidence that the virus causes infection and can be transmitted through treated drinking water or groundwater. Here are a few ways we can keep water and sanitation safe.



UNTREATED
WATER



FILTRATION



BOIL WATER
TO 100°C



DISINFECT WITH
A SAFE AMOUNT
OF BLEACH



PROTECTIVE GEAR
FOR SANITATION
WORKERS



KEEP LID
CLOSED WHEN
FLUSHING



NO OPEN
CONTAINMENT
OF FAECAL MATTER

More information on COVID-19 can be accessed [here](#)

Upcoming Events...

21st WATERNET/WARFSA/GWPSA SYMPOSIUM

Integrated Water Resources Management for Sustainable Development in Eastern and Southern Africa

28 - 30 October 2020

The first call for abstracts can be accessed [here](#)

Organise your registration, travel and accommodation on time

