



GROUNDWATER MANAGEMENT INSTITUTE

THE *Well*

THE OFFICIAL SADC-GMI NEWSLETTER

LEAVING NO ONE BEHIND

MAY 2019

EDITION 2

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GROUNDWATER IN A
TIME OF DISASTER

20

SADC-GMI:
ENSURING THAT
NOBODY IS LEFT
BEHIND

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FUTURE OUTLOOK:
RETHINKING AFRICAN
CITIES



SECOND SADC GROUNDWATER CONFERENCE

GROUNDWATER'S
CONTRIBUTION TO
THE ACHIEVEMENT
OF SUSTAINABLE
DEVELOPMENT
GOALS IN THE SADC
REGION

DATE

4 - 6 September 2019

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BEHIND AS WE
STRIVE TOWARDS
WATER FOR ALL.

FOR ENQUIRIES

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EXECUTIVE DIRECTOR'S NOTE

Welcome to the second edition of The Well, our SADC Groundwater newsletter. The publication was launched in September 2018 around the time of our first ever SADC Groundwater Conference. The Well aims to create a discussion around groundwater, while giving insight to critical groundwater issues championed by SADC-GMI and her stakeholders. We realise that few such publications exist, and decided to create the space to showcase the innovations and successes of the sector. This is just one of the ways the SADC Groundwater Management Institute is promoting communication of groundwater issues in the region. World Water Day was celebrated on March 22, and with this edition we hope to pick up on the 2019 theme - 'Leaving no one behind', which emphasised the goal of water for all by 2030.

At SADC-GMI we are proud that our mandates fully align to the idea that nobody should be left behind when it comes to access to water for all. We are also pleased to announce that in August 2018, the 38th SADC Council meeting granted us full subsidiary status, ratifying our organisation as a legitimate agent for change, and establishing us as a Centre of Excellence for groundwater issues in the SADC region. This just strengthens our commitment to ensuring water for all by 2030, as promulgated by the United Nations Sustainable Development Goal 6, calling for clean water and sanitation for all people. In collaboration and partnership with our key regional and international partners, we have managed to implement a number of interventions aimed at providing innovative solutions to the groundwater challenges faced across the SADC region. In collaboration with the Malawian Government, our teams at SADC-GMI successfully piloted the exploration of a deep aquifer, while simultaneously installing a water supply scheme at Chimbiya village. Through this project we ensured the area's 15 000 inhabitants have access to potable water. This is a practical demonstration of how SADC-GMI strives to apply research to ensure that nobody is left behind.

We are, however, cognisant of the fact that reaching this SDG 6 will demand that any sustainable utilisation for groundwater resources occurs within a conducive policy, supported by legal and institutional frameworks. For this reason we have embarked on a project over the past 12 months to create the desired environment across the 16 SADC Member States. We have worked to identify existing gaps in these policies and frameworks and are, at regional level, rolling out a pilot project in Tanzania to ensure that these gaps are closed. Conducting innovative and groundbreaking applied research is also part of our organisation's core

work. We have thus embarked on the first regional Conjunctive Water Resources Management Research in the Shire Transboundary River/Aquifer System - a shared water resource between Malawi and Mozambique. We are confident that the outcomes of this research, which ran until April 2019, will inform all future work in the Transboundary Aquifers in the SADC region and beyond - all thanks to the new principles and practices for conjunctive transboundary water resources that became evident.

We believe that the work we do facilitates, and to a certain extent demands, the collection and sharing of groundwater data in order to generate information and inform decision-making at all levels of society. Without information, the decision-makers in question will not be able to reach everyone. The past 18 months has seen SADC-GMI implement the Capacity Building for Groundwater Data Collection and Management Project across all SADC Member States. The project assists in identifying existing gaps in data collection and management, as well as helps with Member States capacity building on groundwater data collection and management. This project has also seen the development of a regional framework to guide Member States on the subject matter, in conjunction to these successes, the project also ran an internship programme that trained and empowered two young professionals from each Member State. With our diverse and innovative mix of offerings, we at SADC-GMI believe that we are living our mandate and doing our part to ensure that, in our quest to promote groundwater as an indispensable resource, we are not leaving anyone behind. In fact, we know that groundwater is more important now than ever in the wake of the devastating impacts of climate change. After all, groundwater is more resilient to climate change than surface water. For this reason we cannot afford to overlook its importance in contributing to water security and sustainable development, both in the region and on the African continent.

We hope you enjoy reading this edition of The Well, and remember to also follow our other online and social media platforms to stay informed between editions, and to find out more about our various projects as they change, not only policy, but also lives.





**G R O U N D W A T E R
M A N A G E M E N T
T O L E S S E N
D E V A S T A T I O N
O F N A T U R A L
D I S A S T E R S**



While parts of Southern Africa have been hit hard by water scarcity in recent years, flooding from Cyclone Idai has left devastation in its wake.

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During times of severe water scarcity groundwater can be more than a helpful resource - it can be the difference between life and death.

- Dr Imtiaz Sooliman, Founder, Gift of the Givers

”

While parts of Southern Africa have been hit hard by water scarcity in recent years, flooding from Cyclone Idai has left devastation in its wake. Relief organisations on the ground warned that the final body count in Mozambique could exceed 1000, with up to 90% of Beira destroyed by the storm. Hundreds more died in Zimbabwe, while flooding in the week leading up to the cyclone's landfall left 56 people dead in Malawi.

Less than a month later, the region was hit by a second tropical storm, Cyclone Kenneth.

Experts, however, suggest that devastation from floods in Southern Africa can be lessened if surface water and groundwater are managed better.

Jonathan Lautze, a senior researcher at International Water Management Institute-Southern Africa, says devastation from recent floods can be minimised through proper planning and management around both underground and above-ground water supplies – especially in southern Malawi and parts of northern Mozambique, both which have been severely affected by the cyclone.

“Through appropriate land management we can increase the amount of water going into the ground, rather than flowing down the surface. That means, if vegetation is good, water can infiltrate and percolate into the ground so that less water

goes downstream and causes these floods,” Lautze explains.

SADC-GMI's executive director James Sauramba concurs with Lautze and says groundwater assists both during very wet periods and when it is extremely dry.

“We have what you call natural infrastructure which enables the groundwater to infiltrate from floods into aquifers. That water can be used during dry periods,” Sauramba said.

Malawi's chief groundwater officer in the Department of Water Resources, Ziona Uka, says “In the cases of damage to water supply infrastructure or relocation due to flooding, boreholes are often drilled as an immediate solution to the crisis.”

New information about the state and impact of groundwater management comes from a 10-month pilot research project led by Southern African Development Community Groundwater Management Institute (SADC-GMI).

The project looks at a joint transboundary management of surface and groundwater, specifically in Malawi and Mozambique.

The Shire ConWat Research Project aims to improve the management of water resources in the Shire River Basin and the Shire Valley Aquifer which both



“ *In the cases of damage to water supply infrastructure or relocation due to flooding, boreholes are often drilled as an immediate solution to the crisis.* ”

-Zione Uka, Chief Groundwater Officer, Department of Water Resources, Malawi

straddle the border of Malawi and Mozambique.

Lautze, an institutional and governance expert with the Shire ConWat project, says after nine months the project is nearing completion and has already made a valuable contribution to the understanding of the conjunctive management of water resources in both countries.

This, he says, is a critical advancement to finding solutions to climate change-induced weather phenomena which cause and exacerbate natural disasters like droughts and flooding.

He says water quality is another factor to be considered. “The aquatic reef in the area is a major issue. The clogged hydro-power dams have a negative impact on environmental goods and ecosystem services and impede navigation.” One of the main project outputs has been a Transboundary Diagnostic Analysis, detailing the physical, environmental and governance challenges

affecting water resource management in the Shire River/Aquifer system. Lautze says because water resources in both the aquifer and river basin are shared between Malawi and Mozambique, it is important to understand how issues in both countries share a common starting point.

“Another key deliverable is a Strategic Action Plan. At the start of March we agreed on a set of actions that the countries could undertake to improve water management in the Shire River/Aquifer system,” said Lautze.

Lautze says if both countries implement this plan, the impact of natural disasters can be minimised, food security can be boosted and hydro-power generating capacity can be unlocked to support industrialisation in the region.



CHIMBIYA COMMUNITY PROJECT: CHANGING LIVES, ONE DROP AT A TIME

A newly-established borehole has been hailed as a lifesaver by inhabitants of the Malawian village of Chimbiya, where scant rainfall aggravated by climate change has hindered community access to safe drinking water and vital water resources to sustain their livelihoods. The village is situated between Dedza and the Malawian capital city of Lilongwe.

The borehole, at 100m deep, is almost twice as deep as standard boreholes in Malawi, which are usually drilled to 45m. By extending the depth, the borehole, which will supply ten communal-style water distribution points, specifically targets the deep aquifers and delivers improved water availability from the fractured basement aquifer. The Chimbiya Community Project, implemented by the Water Mission and the Malawi Ministry of Water with technical and financial support from SADC-GMI, is just one of the initiatives implemented in response to water challenges in the region. The borehole is estimated to produce 35000 litres of water per day, and will provide clean water to an estimated 15 000 people living in the area.

Water scarcity in Chimbiya has affected more than the livelihoods of those in the region, or the health of those without access to clean drinking water. Before the project's completion vulnerable community members like women and children were often targeted as they travelled long distances to access safe water for drinking and domestic use, exposed to societal ills, harassment and even violence. There was also not enough water for domestic or agricultural use.


According to members of the community this project has been the answer to their prayers - the borehole, they say, will change their lives and their livelihoods. The community of Chimbiya is not unique - water scarcity affects more than 40% of people around the world, an alarming figure that is expected to rise even higher as climate change causes global temperatures to rise. Ensuring universal access to safe and affordable drinking water for all

by 2030 requires that adequate investment is made towards water infrastructure at every level. Groundwater, however, seems to be one way to buffer the impending impact of climate change and water scarcity, especially in regions already struggling with access and surface water resources. As surface water resources are increasingly dwindling as a result of the impacts of climate change, more and more people are turning to groundwater as their primary water source, which also places severe stress on available groundwater resources. Groundwater has proven to be generally more resilient to climate change as it is hidden and less susceptible to evaporation.

For this reason, the SADC-GMI is implementing the Sustainable Groundwater Management in SADC Member States project, funded by the Global Environment Facility (GEF) and Cooperation in International Waters in Africa (CIWA) through World Bank. An important part of this project speaks to the need to promote infrastructure solutions for sustainable groundwater management, which is facilitated by sub-grants awarded to Member States to implement small pilot projects on groundwater infrastructure development.

James Sauramba, SADC-GMI Executive Director, has commended Malawi for being the first country to successfully implement this project, while also praising country representatives for selecting a pilot project that brings water directly to a community where it would have maximum impacts. Sauramba says Chimbiya was the pilot project, but that lessons learned from the Malawi project can ensure that other communities benefit as well, without the same mistakes being repeated. Marcus Wijnen from the World Bank has commended the Chimbiya community for their commitment to the project, highlighting that projects such as these often succeed or fail based on community involvement and community commitment. One borehole. One hundred feet. Fifteen thousand lives changed.





**SOUTHERN AFRICA:
BIG DATA AND
TRANSBOUNDARY WATER
COLLABORATION**

Big data allows businesses to analyse large data sets in order to better inform strategic decisions. The big data phenomenon is being used in a variety of industries, from conservation to water management, to meet sustainability goals, while also addressing environmental, social and governance issues globally.

One of the defining struggles in recent history has been the quest to possess near-real-time, common and accurate information from multiple sources, automating responses to incidents or events and improving decision-making support. The goal is to view defined and integrated processes and system statuses on a unified dashboard.

This is big data analytics, and it will bring big opportunities for data integration in the water sector.

SADC-GMI is currently collaborating with the US Agency for International Development, and the South African Department of Science and Technology for funding for the Big Data and Transboundary Water Collaboration in Southern Africa Project to address data collection and management while sharing information about gaps identified in the water sector.

The primary objective of the project is to utilize 'big data' - the power of the machines - to collect and analyse information and close the current gaps, all while generating usable information that is critical to policy- and decision-makers.

The project centres on the fact that there are still many transboundary aquifers that we lack adequate information about. The scant data means that decision-making cannot be adequately guided and informed decisions become exceedingly difficult.

The project, which commenced in January 2019, is expected to run for 18 months.

The focus will be on four critical areas, with the first being the consolidation of data and application of big data tools to enhance national and transboundary data sets in Southern Africa.

These will support decision-making capabilities when it comes to issues surrounding security of water resources. The project will also focus on transboundary water collaboration, and on localising transboundary data sets in Southern Africa. The fourth focus area is on securing groundwater transboundary systems.




As the Centre of Excellence in promoting equitable and sustainable groundwater management in the SADC region, SADC-GMI is funding the fourth focus area of the project, namely groundwater security and transboundary systems in the SADC region. "This is the only theme that is specifically aligned to our mandate and what we already do as far as transboundary aquifers (TBAs) are concerned. The main aim of the project is to pilot the big data analytics to one of the TBAs and apply the lessons learned to other TBAs in the region", said Mr James Sauramba, SADC-GMI Executive Director.

"If this pilot works out well, that will mean we have found a solution to knowing more about our TBAs in the region, and in turn we could more systematically promote water security", he continued.

This is the very first time a concept like this has been used or implemented for transboundary aquifers in the SADC region. At SADC-GMI we believe this innovation will transform the data management landscape of the water sector in the region, eventually expanding to the rest of the continent.

A photograph of a sunset over a field. The sun is low on the horizon, creating a bright orange and yellow glow. A power line tower stands on the right side of the frame. The sky is filled with soft, wispy clouds. The foreground is a dark, flat field.

RETHINKING GROUNDWATER FOR FUTURE POWER

A landscape photograph taken at sunset or sunrise. The sky is a mix of deep blue at the top and bright yellow-orange near the horizon. Several power lines stretch across the frame from the left side towards the right. In the foreground, there is a dark, flat field. A line of trees is visible on the horizon. The overall mood is serene but carries a sense of environmental concern.

With SADC's hydropower generating capacity concentrated in the Zambezi and Nile River Basins, changing rainfall patterns are a cause for concern.



With SADC's hydropower generating capacity concentrated in the Zambezi and Nile River Basins, changing rainfall patterns are a cause for concern. Groundwater is recognised as a resource to help replenish strained water resources in major cities, but experts say it also has a part to play as climate change sees energy needs grow and traditional resources dwindle.

The impact of water scarcity is being felt across SADC and sustainable energy supplies are under major threat. In the Democratic Republic of Congo, Malawi, Mozambique, Namibia and Zambia, hydropower is used to meet 90% of the energy needs. This means changing rainfall patterns could result in major disruptions in electricity supplies for these five countries. The United Nations Environment Programme estimates between 75 to 250 million people will be affected by water scarcity due to climate change in sub-Saharan Africa.

While some research shows climate change may have a minimal, or even slightly positive impact on hydropower generation elsewhere in the world, this is not true for Southern Africa. Climate is likely to cause variations in rainfall patterns, which will affect water levels in major hydropower dams.

A RELIANCE ON SURFACE WATER THREATENS GREEN ENERGY GOALS

The Zambezi River Basin is responsible for about 75% of the sub-region's generating capacity, producing around 5.28 GW of the areas estimated 7.2 GW power. Of this, 45% is generated in Mozambique, 36% in Zambia, 14% in Zimbabwe, and 5% in Malawi.

According to Dr Mark Tadross from the Climate Systems Analysis Group at the University of Cape Town, water generation can be impacted by the seasons and amounts of rainfall, which can alter the

times when dams and lakes have sufficient water for energy generation. This can have a devastating effect on energy supply to countries dependent on hydropower.

"The increasing chance of having consecutive dry years, or consecutive dry seasons, can push water below levels needed for generating power, especially where extraction for irrigation and urban water uses also increase," Tadross says.

Hydropower definitely has strengths, but Sub-Saharan Africa's reliance on it to meet energy needs is not without challenges. Hydropower generated in the river basins relies exclusively on surface water, which is more vulnerable than groundwater to the effects of climate change. While the water levels in the river basins and reservoirs has historically been stable, easy to manage and easy to predict, this is no longer the case.

HYDROPOWER PLANS AT RISK DUE TO CHANGING RAINFALL PATTERNS

Professor Declan Conway of the Grantham Research Institute on Climate Change and the Environment says while the dams can be replenished with groundwater during the dry season, this resource does not contribute enough to fill the gaps needed for hydropower generation.

In 2016 Conway conducted a study into risks of electrical disruptions posed by new hydropower plants which are still being planned in East and Southern Africa. The study found that the region's reservoir systems are designed based on past rainfall patterns and do not take variations caused by climate change into account. Tadross agrees and says decision-makers shy away from using updated models to help predict weather patterns. He says there is still hesitation about trusting predictive

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The increasing chance of having consecutive dry years, or consecutive dry seasons, can push water below levels needed for generating power.

- Dr Mark Tadross, Senior Research Officer, Environmental and Geographic Science Department, University of Cape Town

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systems and forecasts, and confusion about the interpretation of conflicting reports. The absence of political will and lack of clear guidelines for how to use these forecasts adds to inaction.

But this needs to change. "Sometimes there are clear indications, like the 2015-2016 El Niño, which was forecast well in advance, and it came on top of already dry conditions," Tadross explained. He said in such circumstances precautionary principles should hold and action must be taken.

GEOTHERMAL ENERGY: LESS AFFECTED BY CLIMATE CHANGE

While South Africa has a more diverse mix of energy sources, 60% of sub-Saharan Africa depends solely on hydropower for its electricity needs. Severe droughts that are now becoming commonplace mean rolling blackouts are on the cards for hydro-reliant regions.

Geothermal power may be a solution - generated by harnessing groundwater reserves and tapping into the powers of the region's aquifers.

The CEO of South Africa's Water Research Commission, Dhesigen Naidoo, says there has been a boom in exploring geothermal energy potential and attempts to exploit low enthalpy hydro-geothermal resources. These resources, which occur deep underground, are characterised by temperatures of more than 150°C and can largely be found in the volcanic aquifers of the East African rift valleys, where water can be extracted for power generation.

The United Nations Environment Programme estimates Africa's geothermal potential at around 20 000 MW - mostly, as mentioned by Naidoo, in the rift valleys along Eastern Africa. In the SADC region, areas with geothermal potential include Tanzania's

volcanic provinces of Kilimanjaro, Meru and Rungwe, as well as in Luhoi, Kisaki, Utete and Tanga along the country's coastal belt. Other areas with potential include the 'hot rings' near Tanzania's border with Uganda, the Democratic Republic of the Congo and Zambia.

Naidoo says there are also opportunities for low-scale energy demands, where shallow resources can be used for ground-coupled heat-pumps for space heating during cold weather, as well as to cool spaces when temperatures rise.

While Kenya is not a SADC Member State, the East African country can teach its neighbours a lot about managing interactions between groundwater and growing energy demands. Kenya is ahead of the curve, leading the African race in attracting renewable energy funding and generating geothermal energy.

Kenya has received \$195 million from the African Development Bank, acting as an implementing entity for Climate Investment Funds, for its geothermal energy generation projects.

While initial source exploration, surveys and infrastructure can be costly, the World Bank's Energy Sector Management Assistance Programme (ESMAP) attributes Kenya's success to early government involvement in the developmental stages of the projects.

The challenges faced in the SADC region did not occur in a vacuum, and the solutions cannot be implemented in a silo. Governments and developmental agencies must take note of groundwater-based solutions showing success elsewhere on the continent, especially in the wake of climate change and the threats it poses to regional and global development.



Q&A

Phera Ramoeli

*Executive Secretary
of the Okavango River
Basin Commission,
based in Gaborone,
Botswana.*

Can you tell us a bit about the work you do?

I am responsible for the coordination of activities of the Okavango River Basin Commission on behalf of three countries, Angola, Botswana and Namibia. We have a number of activities that support livelihoods in the basin, programmes that support development of data information collection networks, and programmes that support tourism and agriculture. Our work as a commission mainly focuses on water and all other resources that depend on water - like agriculture and fisheries, particularly at the community level where people depend on the river basin for their livelihoods. This basin is relatively pristine, in other words it hasn't had a lot of development to disturb the system. It is a very ecologically and environmentally sensitive and important watercourse - I think, by far in the whole of the SADC region, it is one of the most pristine ones.

Tell us a bit about your background - where did you grow up and how did you get to where you are today?

I was born in Lesotho, in a village in a district called Leribe, where I did my primary and high school. I left Leribe when I was going to university, the National University of Lesotho. Then I went for a postgraduate diploma in operational hydrology in Nairobi, Kenya. At that time I was already working at the Department of Water in Lesotho, in the Ministry of Natural Resources. I went for my masters at the University of London, King's College, and then still continued working for the government of Lesotho. When SADC heads of state and government in 1996 decided to have water as a dedicated sector for cooperation in the SADC region and allocated the responsibility of coordination to Lesotho, I was one of the officers that started that office.

What is it that makes you so passionate about the water sector?

It is a sector that is almost invariably undervalued. It is always taken for granted, yet it is the most important element that supports life. It is very interesting for me to be part of the management of such a resource, particularly when you talk about water as a shared resource. In this region, there are countries that share as many as nine river basins with their neighbors. It is very interesting to coordinate and assist them to equitably and reasonably utilise this shared resource without going into conflict.

How do we change the current narrative around water in SADC?

I think we need to stop talking to ourselves as the water sector, and start talking to others that need to understand the sector as well. There are cases where you find even the agriculture sector takes water as a given. Even when you talk about GDP - at every spectrum of that value chain - water has been involved, from the beginning all the way up to the end.

What is the most important thing for policy makers and corporates to know?

First, that water is important for ALL sectors of development. Secondly, water is a shared resource, which means cooperation in its utilisation and management is highly important. No one person can claim that the water is just for them - it is for all of us. It's such a basic need that everybody and everything needs, and we need to share it. For example, in mining, water is always a limiting factor. You can have all of your minerals but if you don't have the water for the processes to go on then you may as well call it quits. People need to attach the necessary value that water brings to their corporate development to ensure that the water footprint is seen across the spectrum of their processes.

You are striving towards a goal in the water sector - what is this goal, and what will success look like in achieving it?

Success should be seen in the lives we change that subsist on the water resources we manage - the farmer, the community member and the fisherman. If their lives have changed because of the work I do managing resources they depend on, then I'll be happy. Beyond that, of course, GDPs going up is good, but the GDP has to translate to changing lives. Because otherwise it's just statistics. You can have a very high GDP but you find that it's skewed because there are still those who are very poor. We want to make sure that at least there is an equitable distribution of resources and wealth; not equal but equitable. That way everybody gets what they need and can sustain themselves.

“ *Water is such an important resource, it's everybody's business.* ”

WOMEN IN CHARGE: ZIONE UKA



There is no tool more effective for the development of a region than the empowerment of its women. At SADC-GMI we know that women are often at the forefront of change, pushing boundaries and inspiring social and economic development in their communities. The water management sector is no different, and at SADC-GMI we know that when it comes to ensuring that no one is left behind, women will be leading from the frontlines to ensure access to clean water for all. Zione Uka is one of those women.

Zione Uka is the Chief Officer for Groundwater Development at Malawi's Department of Water Resources. She has been involved in driving a number of initiatives aimed at broadening access to clean drinking water in Malawi, particularly for the rural communities. In these communities, women often walk great distances to collect water for domestic and agricultural use.

Uka says many rural communities in Malawi have relied on groundwater as a principal source of water since the 1930s. Just short of a century later and this has not changed for the majority of people living in rural Malawi - 83.2% of the country's total population. According to her, the 2018 Sector Performance Report shows 54% of Malawi's rural population get their water from boreholes and a further 14% from deep wells.

According to Uka, groundwater is still the first option and primary water source in these communities. "The cost effectiveness is also superior to water supply facilities using surface water, owing to the low capital investment in rural water supply. It also complements surface water as a water source for towns and market centers and is since recent times being developed to compliment supply in cities like Malawi," she said.

“ The cost effectiveness is also superior to water supply facilities using surface water

- Zione Uka, Chief Groundwater Officer, Department of Water Resources, Malawi

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At the moment there are more than 58,000 groundwater access points across the country, which have helped increase the access to safe water to 85.7% in rural regions. Boreholes also come to the rescue when water resources are

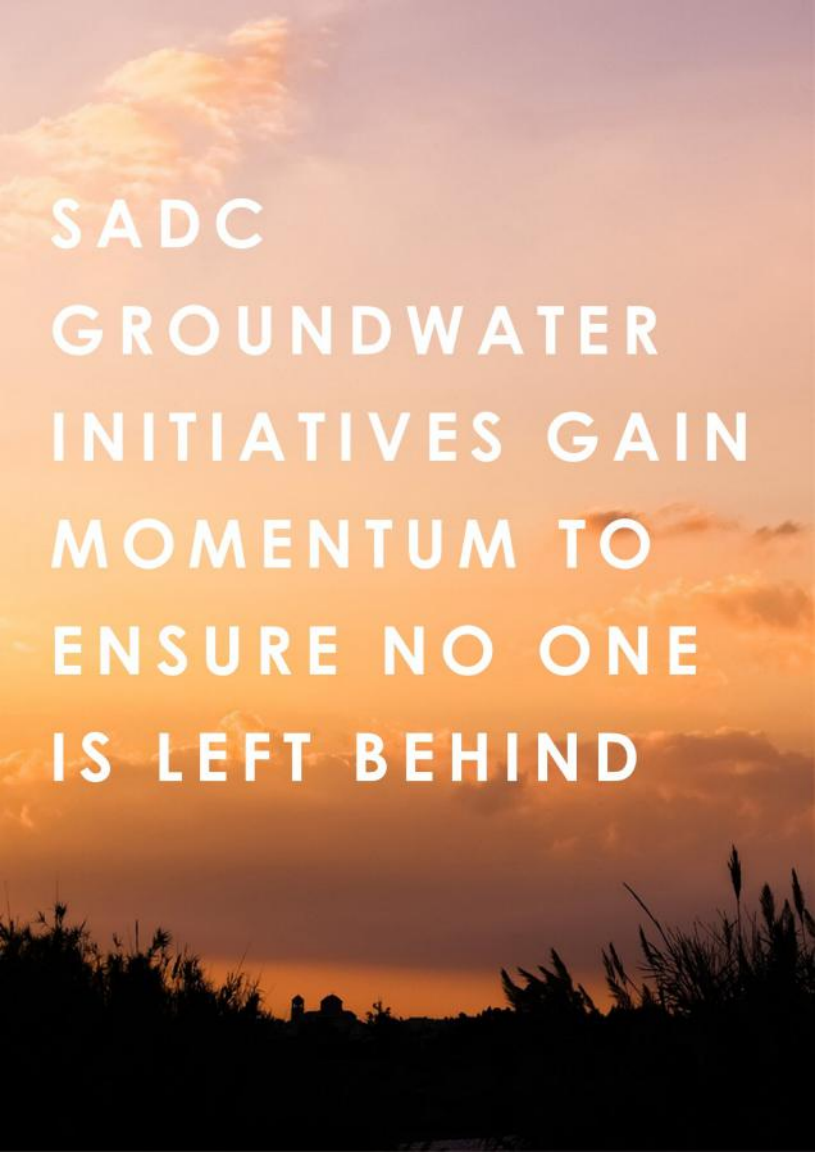
hit hard by recurrent droughts. According to Uka, this was evident in 2018. "A number of dams in the country that supply water to towns - the Mpira dam that serves Balaka, the Chitete dam in Kasungu - nearly dried up. This necessitated drilling of boreholes."

Water resources also play a central role in Malawi's national economy. "Many boreholes have been constructed in rural areas, market centres and towns, either by the ministry responsible for water affairs or development partner agencies," she said. Uka adds that they also promote the Afridev Pump in the rural areas and market centres as the standard pump for extracting water from boreholes.

The Afridev Pump, initially called the Maldev, was developed in Malawi in the late 1970s. At the time the available handpumps imported from industrialised countries were not reliable and came with their own set of problems - they broke down prematurely, used components that were easily worn out and could not be fixed locally as parts were sourced from abroad and required highly skilled technicians for maintenance.

The Afridev is strong but uses lightweight components. It is easy to repair and can be fixed by semi-skilled technicians who receive basic training in its technologies, using tools that are readily available. The pump was an important aspect of United Nations Development Programme and the World Bank's Decade of Water Supply and Sanitation initiative which ran from 1981 to 1990, the years commonly referred to as The Water Decade.

The Afridev Pump has not only broadened access to clean water for millions beyond Africa, it has also helped to transform perceptions about the role of women in development. It was one of the first projects that saw women successfully integrated into planning and implementation, and subsequently stepping up to lead from the front. The benefits of having women involved in water management became clear - after all, they were the ones who assumed responsibility and often quite literally carried the weight of lack of access to clean water. Since the increased involvement of women in community water supply spaces in Africa during the late 1980s, hygiene, sanitation and access to water have improved across the board. Moreover, women have stepped into a space in the sector, leading the way to ensure sustainable water supply systems for all - with nobody left behind.



SADC
GROUNDWATER
INITIATIVES GAIN
MOMENTUM TO
ENSURE NO ONE
IS LEFT BEHIND



The buzz around groundwater is growing and excitement is bubbling over as more of Africa recognises the growing importance of groundwater as a sustainable resource.

The buzz around groundwater is growing and excitement is bubbling over as more of Africa recognises the growing importance of groundwater as a sustainable resource. This is especially true in the SADC region, which has been hard hit in recent years by the devastating effects of climate change.

The unprecedented flurry of activity around groundwater and groundwater management - along with its impact on surface water - has seen a resurgence of solution-based research, growing literature and media coverage across both traditional and social media platforms. This has seen a long list of projects mushrooming all over SADC's aquifers - underground layers of rock saturated with water.

SADC Groundwater Management Institute's executive director James Sauramba says it is hard to believe that the strides made to increase awareness and include more of the region's population in decision-making about this strategic resource has only really intensified and reached dizzy heights in the past three years.

"One of our key mandates was to institutionalise groundwater into existing water management institutions within the region. We have made a lot of headway in terms of working with the River Basin Organisations (RBOs), and as we speak we have had some Memoranda of Understanding signed with three of the RBOs."

SADC'S SHARED WATER RESOURCES

River basins are portions of land drained by a river and all the smaller streams that flow downhill from the area. In SADC there are 15 river basins that are shared between two or more countries - the Congo River Basin spans an area of 3,73 million square kilometres and its water is shared by nine countries on both the Indian and South Atlantic oceans. In Africa, the Congo River Basin is second only to the much smaller - but longer - Nile River Basin which is shared by 10 countries.

In the SADC region, however, an astounding 30 groundwater aquifers are shared between countries. These aquifers, referred to as 'transboundary aquifers', along with the 15 transboundary river basins, are a vital source of life for the SADC community.

About 70% of the water used by the region's estimated 280 million people comes from a transboundary source. Transboundary aquifers and river basins have become sites of major activity in the SADC water sector.



GROUNDWATER A MATTER OF LIFE AND DEATH

A lot of the focus remains on finding smart ways of managing the two water resources to assist communities in fending off the real and devastating effects of climate change on their livelihoods, economies and general wellbeing.

The role groundwater can play in blunting the effects of climate change and natural disasters is most obvious during severe droughts, or when infrastructure failures occur or concerns about water quality are raised.

During times of severe water scarcity groundwater can be more than a helpful resource - it can be the difference between life and death.

Dr. Imtiaz Sooliman heads up Gift of The Givers, a humanitarian organisation that has led many drought relief efforts across the SADC region. He says sometimes the help comes just in time, as communities stand on the edge of a precipice.

In the university town of Makhanda (formerly Grahamstown) in South Africa's Eastern Cape province, a combination of drought and failing infrastructure have caused taps to dry up and compromised the area's water quality.

Sooliman says if they had not intervened and successfully drilled boreholes, the situation would have had a tragic ending. "The people would have died. There is no other way of putting it. There is no other form of water there." Sooliman says residents say the boreholes averted chaos from erupting in Makhanda - tensions were high.



municipal buildings were on the verge of being torched by desperate residents and the usually idyllic town was close to complete social breakdown.

PROJECTS AND STRATEGIC PARTNERSHIPS

Sauramba, looking further into the future, says the mushrooming transboundary water management projects are a source of encouragement about prospects of development in the region.

The Shire ConWat project which looks at the transboundary water resources in Malawi and Mozambique is a 10-month long project focusing on managing water use from the Shire River Basin and Shire Valley Aquifer and has only one month left before completion.

Another project, in collaboration with the International Water Management Institute, started in October 2018 and is set to last three years, focusing on the Tuli-Karoo Transboundary Aquifer shared by Botswana, South Africa, and Zimbabwe.

Sauramba says a number of institutes are involved in their projects. "We are also working with the International Union of the Conservation of Nature that is involved in biodiversity issues to address groundwater dependent ecosystems. We have submitted proposals to some of our partners so that we look at the Khakhea-Bray Transboundary Aquifer [shared by Botswana and South Africa] as a pilot."

He says these partnerships formed with stakeholders help lower operational costs and avoid duplication of efforts.

PRIVATE SECTOR INVOLVEMENT STILL SLOW

Despite enthusiasm in public and developmental spaces, the response by the private sector leaves much to be desired.

Sauramba says this sector is still hesitant and has not been forthcoming as far as investing in groundwater is concerned. An increased interest from private investors could, however, push groundwater research and groundwater management to the next level.

He says some of SADC-GMI's efforts are yet to yield favorable results. "We have developed a directory of all the drilling companies in the region which is available on the website www.sadc-gmi.org. The idea is to sensitise the users of drilling companies because these companies are private, and we want the users to be aware of the drilling companies in their areas."

A deliberate effort has also been made to reach out to mining communities, as well as industrial and agricultural users of groundwater. Sauramba says in these areas, they have struggled to make ground.

He wants the private sector to realise that groundwater is a more resilient resource that will help communities and industries cope better with climate change.

"Studies have proven that groundwater does not react at the same rate as surface water when confronted with the challenges of climate change."

And this, he says, is what makes groundwater the resource of the future.

Le bourdonnement autour des eaux souterraines s'accroît et l'enthousiasme déborde à mesure que de plus en plus de pays africains reconnaissent l'importance croissante des eaux souterraines en tant que ressource durable. Ceci est particulièrement vrai dans la région de la SADC, qui a été durement touchée ces dernières années par les effets dévastateurs du changement climatique.

Le déclenchement d'activités intenses sans précédent autour des eaux souterraines et la gestion des eaux souterraines - ainsi que son impact sur les eaux de surface - a entraîné une résurgence de la recherche basée sur des solutions, et un accroissement de documentation et de couverture médiatique sur les plateformes de médias traditionnels et sociaux. On a ainsi pu voir se multiplier les projets concernant les aquifères - des couches souterraines de roches saturées en eau, de la SADC.

Le directeur général de l'Institut de gestion des eaux souterraines de la SADC, James Sauramba, déclare qu'il était difficile de croire que les avancées réalisées pour faire progresser la sensibilisation et inclure un plus grand nombre de la population de la région dans la prise de décision concernant cette ressource stratégique ne se sont réellement intensifiées et atteints des sommets vertigineux qu'au cours des trois dernières années.

«L'une de nos missions clés était d'institutionnaliser les eaux souterraines dans les instituts de gestion des eaux existants dans la région. Nous avons beaucoup progressé en termes de collaboration avec les Organismes de bassins fluviaux (RBO) et, d'instant même, des Protocoles d'accord avec trois de ces RBO ont été signés.»

Ressources en eau partagées de la SADC

Les bassins fluviaux constituent des parties de terrain drainées par une rivière et tous les plus petits ruisseaux qui descendent de la région.

Dans la région de la SADC, 15 bassins fluviaux sont partagés entre deux ou plusieurs pays - le bassin du fleuve Congo couvre une superficie de 3,73 millions de kilomètres carrés et ses eaux sont partagées par neuf pays des océans Indien et Atlantique Sud. En Afrique, le bassin du fleuve Congo se classe au second rang, après le bassin du Nil, beaucoup plus petit - mais plus long - qui est partagé par 10 pays.

Dans la région de la SADC, toutefois, 30 superbes aquifères souterrains sont partagés entre les pays. Ces aquifères, appelés « aquifères transfrontaliers », ainsi que les 15 bassins fluviaux transfrontaliers, constituent une source de vie vitale pour la communauté de la SADC. Environ 70% de l'eau utilisée par environ 280 millions de personnes de la région provient d'une source transfrontalière. Les aquifères et les bassins fluviaux transfrontaliers sont devenus des sites d'activité



mojeure dans le secteur de l'eau de la SADC. Il reste encore beaucoup à faire pour trouver des moyens intelligents de gérer les deux ressources en eau afin d'aider les communautés à contrer les effets réels et dévastateurs du changement climatique sur leurs moyens de subsistance, leur économie et leur bien-être général.

Le rôle que les eaux souterraines peuvent jouer pour atténuer les effets du changement climatique et des catastrophes naturelles est particulièrement évident lors d'une grande sécheresse ou lors de défaillance des infrastructures ou de préoccupations concernant la qualité de l'eau.

Les eaux souterraines sont une question de vie ou de mort

En période de grave pénurie d'eau, les eaux souterraines peuvent être plus qu'une ressource utile - elles peuvent faire toute la différence entre la vie ou la mort.

Dr Imtiaz Sooliman dirige Gift of the Givers, une organisation humanitaire qui a déployé de nombreux efforts de secours en réponse à la sécheresse dans la région de la SADC. Il a dit que parfois l'aide arrive juste à temps, lors que les communautés sont au bord d'un précipice.

Dans la ville universitaire de Makhanda (anciennement Grahamstown) dans la province du Cap oriental d'Afrique du Sud, une combinaison de sécheresse et d'infrastructures défaillantes avait provoqué la coupure d'eau courante et compromis la qualité de l'eau de la région.

Sooliman affirme que s'ils n'étaient pas intervenus et n'avaient pas foré des forages avec succès, la situation aurait eu une fin tragique. «Les gens seraient morts. Il n'y a pas d'autre moyen de le dire. Il n'y a pas d'autre

LES INITIATIVES EN MATIÈRE D'EAUX SOUTERRAINES DE LA SADC PRENNENT DE L'AMPLEUR POUR VEILLER À CE QUE PERSONNE NE SOIT LAISSÉ POUR COMPTE

forme d'eau là-bas.» Selon Sooliman, les habitants ont affirmé que les forages ont permis d'éviter le chaos à Makhanda - les tensions étaient fortes, les bâtiments municipaux étaient sur le point d'être incendiés par des habitants désespérés et la ville, généralement idyllique, était sur le point d'un effondrement social.

Projets et partenariats stratégiques

Sauramba, ense projetant plus loin dans le futur, a déclaré que les projets de gestion des eaux transfrontalières qui se multiplient sont une source d'encouragement pour les perspectives de développement de la région.

Le projet Shire ConWat, qui porte sur les ressources en eau transfrontalières au Malawi et au Mozambique, d'une durée de 10 mois, se concentre sur la gestion de l'utilisation de l'eau des bassins du fleuve Shire et de l'aquifère de la vallée Shire. Il ne reste qu'un mois avant son achèvement.

Un autre projet, en collaboration avec l'Institut international de la gestion de l'eau (IWI), a débuté en octobre 2018 et devrait durer trois ans. Il porte sur l'aquifère transfrontalier Tuli-Karoo partagé par le Botswana, l'Afrique du Sud et le Zimbabwe.

Sauramba dit qu'un certain nombre d'instituts sont impliqués dans leurs projets. «Nous travaillons également avec l'Union internationale pour la conservation de la nature, qui s'occupe des questions de biodiversité pour traiter les écosystèmes dépendants des eaux souterraines. Nous avons proposé à certains de nos partenaires d'examiner l'aquifère transfrontalier Khakhea-Broy [partagé par le Botswana et l'Afrique du Sud] en tant que projet pilote.»

Il déclare que ces partenariats formés avec des parties prenantes permettent de réduire les coûts d'exploitation et d'éviter le chevauchement des efforts.

La participation du secteur privé demeure lente

Malgré l'enthousiasme manifesté par les espaces publics et de développement, la réaction du secteur privé laisse beaucoup à désirer. Sauramba déclare que ce secteur hésite encore et ne se montre pas disposé à investir dans les eaux souterraines. Un intérêt accru de la part des investisseurs privés pourrait toutefois pousser la recherche et la gestion des eaux souterraines à un niveau supérieur.

Il déclare que certains des efforts déployés par la SADC-GMI n'ont pas encore donné de résultats. «Nous avons établi un répertoire de toutes les sociétés de forage de la région qui est disponible sur notre site Web. L'idée consiste à sensibiliser les utilisateurs aux sociétés de forage, car ces sociétés sont privées, et nous souhaitons que les utilisateurs soient accourant des sociétés de forage dans leurs régions.»

Un effort particulier a également été consenti pour établir un dialogue avec les communautés minières, les communautés et les industries à mieux faire face aux eaux souterraines. Sauramba dit qu'ils ont eu du mal à gagner du terrain dans ces secteurs.

Il souhaite que le secteur privé réalise que les eaux souterraines sont une ressource plus résiliente qui aideront les communautés et les industries à mieux faire face au changement climatique. «Des études ont démontré que les eaux souterraines ne réagissent pas à la même vitesse que les eaux de surface lorsqu'elles sont confrontées aux défis du changement climatique.» Il ajoute que c'est ce qui fait des eaux souterraines la ressource du futur.

O burburinho em torno das águas subterrâneas está crescendo e a excitação está borbulhando à medida que mais partes de África reconhecem a crescente importância da água como um recurso sustentável . Isto é especialmente verdade na região da SADC , que tem sido duramente atingida nos últimos anos pelos efeitos devastadores das alterações climáticas .

O turbilhão de actividades sem precedentes em torno da de águas subterrâneas e sua gestão - juntamente com seu impacto nas águas superficiais - viu o ressurgimento de pesquisas baseadas em soluções, a crescente literatura e cobertura da mídia em plataformas tradicionais e de mídia social. Assim tem-se visto uma longa lista de projectos a espalhar-se por todos os aquíferos da SADC - camadas subterrâneas de rochas saturadas de água .

James Sauramba, Director Executivo do Instituto de Gestão de Águas Subterrâneas da SADC , diz que é difícil acreditar que os progressos feitos para aumentar a sensibilização e incluir mais a população da região na tomada de decisões sobre este recurso estratégico só tenham realmente acontecido nos últimos três anos.

“Um dos nossos mandatos essenciais foi institucionalizar as águas subterrâneas em instituições de gestão hídrica existentes na região. Temos feito muito progresso em termos de trabalho com as Organizações de Bacias Hidrográficas (RBOs) e, enquanto falamos, tivemos alguns memorandos de acordo assinados com três das RBOs.

Recursos hídricos partilhados da SADC

As bacias hidrográficas são porções de terra drenadas por um rio e todos os riachos menores que fluem da área .

Na SADC existem 15 bacias hidrográficas que são partilhadas entre dois ou mais países - a Bacia do Rio Congo ocupa uma área de 3,73 milhões de quilómetros quadrados e a sua água é partilhada por nove países nos oceanos Índico e Atlântico Sul. Na África, a Bacia do Rio Congo fica em segundo lugar apenas em relação à Bacia do Rio Nilo, muito menor, porém mais longa, partilhada por 10 países .

Na região da SADC, no entanto, surpreendentemente 30 aquíferos subterrâneos são compartilhados entre os países . Estes aquíferos, referidos como “aquíferos transfronteiriços”, juntamente com as 15 bacias hidrográficas transfronteiriças, são uma fonte vital de vida para a comunidade da SADC . Cerca de 70% da água usada por mais de 230 milhões de pessoas da região vem de uma fonte transfronteiriça .



Aquíferos transfronteiriços e bacias hidrográficas tornaram-se locais de grande actividade no sector de águas da SADC . A maioria do foco permanece em encontrar maneiras inteligentes de gerir os dois recursos hídricos para ajudar as comunidades a se defenderem dos efeitos reais e devastadores das mudanças climáticas nos seus meios de subsistência, economias e bem-estar geral.

O papel que as águas subterrâneas podem desempenhar na redução dos efeitos das mudanças climáticas e dos desastres naturais é mais óbvio durante secas severas, ou quando ocorrem falhas de infra-estrutura ou são levantadas preocupações sobre a qualidade da água.

Águas subterrâneas uma questão de vida e morte

Durante períodos de severa escassez de água , a água subterrânea pode ser mais do que um recurso útil - pode ser a diferença entre a vida e a morte .

Dr. Imtiaz Sooliman lidera Gift of The Givers, uma organização humanitária que liderou muitos esforços de alívio da seca em toda a região da SADC . Ele diz que às vezes a ajuda chega na hora certa, quando as comunidades estão à beira de um precipício .

Na cidade universitária de Makhanda (antiga Grahamstown), na província de Eastern Cape, na África do Sul, uma combinação de seca e infra-estrutura deficiente fez com que as torneiras secassem e compromettesse a qualidade da água da região.

Sooliman diz que se eles não tivessem intervindo e perfurado furos com sucesso, a situação teria um

INICIATIVAS DE ÁGUAS SUBTERRÂNEAS DA SADC GANHAM FORÇA PARA GARANTIR QUE NINGUÉM SEJA DEIXADO PARA TRÁS

fim trágico . "Pessoas teriam morrido. Não há outra maneira de colocar isso. Não existe lá outra forma de água ."

Sooliman diz que os moradores concordaram que os furos evitaram que o caos entrasse em erupção em Makhanda - as tensões eram altas, os prédios municipais estavam à beira de serem incendiados por moradores desesperados e a cidade, geralmente idílica, estava perto de atingir um colapso social,

Projecto e parcerias estratégicas

Sauramba, olhando mais para o futuro, diz que os projectos transfronteiriços crescentes de gestão de água são uma fonte de encorajamento sobre as perspectivas de desenvolvimento na região .

O projecto Shire ConWat, que examina os recursos hídricos transfronteiriços em Malawi e Moçambique, é um projecto de 10 meses focado na gestão do uso de água dos aquíferos da Bacia do Rio Shire e Vale do Shire e resta apenas um mês para a sua conclusão.

Outro projecto, em colaboração com o Instituto Internacional de Gestão de Água, começou em Outubro de 2018 e deve durar três anos, com foco no Aquífero Transfronteiriço Tuli-Karoo, partilhado por Botswana, África do Sul e Zimbábue.

Sauramba diz que vários institutos estão envolvidos nos seus projectos . "Também estamos trabalhando com a União Internacional da Conservação da Natureza, que está envolvida em questões de biodiversidade para lidar com os ecossistemas dependentes das águas subterrâneas. Submetemos a alguns dos nossos parceiros para analisar o Aquífero Transfronteiriço Khakhea-Broy [partilhado pelo Botswana e pela África do Sul] como piloto."

Ele diz que essas parcerias formadas com as partes interessadas ajudam a reduzir os custos operacionais e evitam a duplicação de esforços

Envolvimento do sector privado ainda lento

Apesar do entusiasmo nos espaços públicos e de desenvolvimento, a resposta do sector privado deixa muito a desejar . Sauramba diz que este sector ainda está hesitante e não se mostrou tão disponível a investir em águas subterrâneas . Um aumento do interesse de investidores privados poderia, no entanto, impulsionar a pesquisa de águas subterrâneas e a gestão das mesmas a um nível posterior.

Ele diz que alguns dos esforços do SADC-GMI ainda estão para produzir resultados favoráveis . " Nós desenvolvemos uma lista de todas as empresas de perfuração na região, que está disponível no nosso site . A ideia é sensibilizar os usuários das empresas de perfuração, porque essas empresas são privadas e queremos que os usuários estejam cientes das empresas de perfuração nas suas áreas ."

Um esforço deliberado também foi feito para alcançar as comunidades mineiras, bem como usuários industriais e agrícolas de águas subterrâneas. Sauramba diz que nessas áreas, eles se esforçaram para ganhar terreno .

Ele quer que o sector privado perceba que a água subterrânea é um recurso mais resiliente que ajudará comunidades e indústrias a lidar melhor com a mudança climática . " Estudos comprovaram que as águas subterrâneas não reagem na mesma proporção que as águas superficiais quando confrontadas com os desafios da mudança climática ." E isso, diz ele, é o que torna a água subterrânea o recurso do futuro .



GROUNDWATER
FOR AFRICAN
CITIES - FUTURE
OUTLOOK

“ Understanding the economic value of extractive groundwater use requires us to consider how water use and productive activity would change if groundwater was not available.

—Dhesigen Naidoo, CEO, South Africa's Water Research Commission

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As African cities continue to expand, SADC decision-makers must find ways to prepare for population surges and rapid urbanisation. This is especially true in the wake of climate change and the threats it poses to regional and global development.

The World Economic Forum's Global Risks Report has, since 2017, highlighted the negative impact of climate change as the greatest threat to development globally.

According to researchers Julia Bello-Schünemann and Ciara Aucoin from the Institute of Security Studies, it is estimated that by 2030 South Africa's Johannesburg, Tanzania's Dar es Salaam and Angola's Luanda will join the Democratic Republic of Congo's capital of Kinshasa as SADC megacities - urban areas with populations of more than 10 million people each. In addition to Kinshasa, two other African cities, Cairo in Egypt and Lagos in Nigeria, are already mega-cities.

Migration in Africa often happens under conditions where host cities struggle to keep up with housing, resources, job creation and employment opportunities. Seven of the 16 SADC member states already have more than half of their population living in urban areas.

This context is not easy to navigate, and changes in demographics are not divorced from development issues. The CEO of South Africa's Water Research Commission, Dhesigen Naidoo, says the uneven distribution of the food, water and power resources is a complicated puzzle to solve, particularly when those resources are almost exclusively dependant on surface water. If urban populations surge, then urban water use is almost certain to rise too.

Naidoo says the Zambezi River is a typical example: "The Zambezi River Basin is shared by eight regional countries, which would mean that all the eight countries rely on the waters from the Zambezi River for water use, irrigation and energy, with hydropower being the major source of power.

"This setup in the distribution of resources in the SADC region requires a systems approach to holistically develop, utilise and manage these resources in an integrated manner to avoid conflicts and ensure water, energy and food security for sustainable development."

There are already major cities heavily reliant on groundwater. The City of Tshwane in South Africa is one of them. Dodoma in Tanzania is another, with groundwater making up more than 70% of the city's water supply and more than two million people in the city reliant on groundwater as their main source of water.

Naidoo says it is possible to quantify the economic value of groundwater to cities the same way that agriculture water productivity is measured.

"Understanding the economic value of extractive groundwater use requires us to consider how water use and productive activity would change if groundwater was not available."

"The difference in economic outcomes with and without groundwater is taken to be its economic use value," says Naidoo. He says on a value per megalitre basis, this economic use value varies greatly over time and space, with the value relying heavily on a number of variables. These variables include the attributes of the groundwater resource, such as its scarcity, quality and reliability; the circumstances where it is used and especially whether there is another water substitute; as well as the type of use, such as irrigation, mining, manufacturing, or domestic use.

He says the economic value of groundwater is dependent on several components, which include extractive, non-extractive and option values. "In countries like Australia and Chile, which have extreme water scarcity challenges, there are well-defined parameters and frameworks to assess and measure the economic value of groundwater," said Naidoo.

TANZANIAN PROJECT HOLDS KEY TO CLOSING GAPS IN SADC GROUNDWATER POLICIES

Tanzania is unique among sub-Saharan countries, with more than two million citizens in the country's capital of Dodoma relying on groundwater as their main source of water.

For this reason, Tanzania serves as the ideal choice of SADC's roadmap for improving the Policy, legal and Institutional frameworks for management of national groundwater resources across the region's 16 Member States.

The rollout will be headed by the Tanzanian Ministry of Water with support by the SADC Groundwater Management Institute (SADC-GMI).

Micah Majiwa is a governance and institutional consultant for SADC-GMI and says that the lessons learned from this pilot project will be upscaled and implemented in other SADC Member States.

Despite the considerable demand from cities like Dodoma where groundwater makes up 70% of the city's water supply, Tanzania only uses 2% of its groundwater resources – approximately 462 million cubic metres per year – a fraction of the 21 200 million cubic metres available.

The flagship research project titled 'Policy, Legal and Institutional Development in SADC Member States' (GMI-PLI) is at 65% completion and expected to wrap up on October 30 2019.

In it, gaps and shortcomings are highlighted when it comes to SADC's approach and

management of surface and groundwater sources shared across borders. Part of the research is Gap Analysis – a broad analysis of water management laws, policies, and regulations in each of the countries involved. Majiwa says the idea is to start with low hanging fruits and not simply to draft and try to implement new rules and regulations.

Majiwa says "The common gap among all Member States is the fact that there is no specific policy or regulations governing groundwater.

This means there are insufficient regulations regarding the management of groundwater – hence Member States face difficulties in enforcing available regulations."

Another problem, he adds, is that SADC Member States often only pay attention to surface water and say very little about the sustainable management of the groundwater.

GMI-PLI's analysis of the region shows that across 15 Member States surface and groundwater resources are still effectively managed as two separate resources, with a very low appetite for developing an integrated approach.

Among the solutions proposed by the GMI-PLI is the establishment of a protocol. Through this the SADC region will have a strategic approach for responses to the impact climate change has on groundwater systems.



LA TANZANIE MET À L'ESSAI UN PROJET PILOTE VISANT À COMBLER LES LACUNES DE LA FEUILLE DE ROUTE EN MATIÈRE DE POLITIQUE, DE LÉGISLATION ET D'INSTITUTIONS RELATIVES AUX EAUX SOUTERRAINES DANS LA SADC

La Tanzanie est unique parmi les pays subsahariens, avec plus de deux millions d'habitants dans la capitale du pays, Dodoma, dont la principale source d'eau est l'eau souterraine. Pour cette raison, la Tanzanie est le choix idéal de la feuille de route de la SADC pour améliorer les cadres politiques, juridiques et institutionnels de la gestion des ressources nationales en eaux souterraines dans les 15 États membres de la région.

Le déploiement sera dirigé par le ministère tanzanien de l'Eau, avec le concours de l'Institut des eaux souterraines de la SADC (SADC-GMI). Micah Majiwa est consultant en gouvernance et en institutions pour la SADC-GMI et indique que les leçons tirées de ce projet pilote seront transposées à plus grande échelle et mises en œuvre dans d'autres États membres de la SADC. Malgré la demande considérable de villes comme Dodoma, où les eaux souterraines représentent 70% de l'approvisionnement en eau de la ville, la Tanzanie n'utilise que 2% de ses ressources en eaux souterraines - environ 462 mètres cubes par an - une fraction des 21 200 mètres cubes disponibles.

Les travaux préparatoires du projet pilote ont été effectués dans le cadre d'une recherche régionale commandée par la SADC-GMI, portant sur les lois, politiques et réglementation régissant les ressources nationales en eaux souterraines entre les 15 États membres de la SADC.

Le projet de recherche phare intitulé «Développement politique, juridique et institutionnel dans les États membres de la SADC» (GMI-PLI) est achevé à 65% et devrait se terminer le 30 octobre 2019. Il met en évidence les lacunes et les insuffisances de l'approche de la SADC en matière de gestion des eaux de surface et des eaux souterraines partagées au-delà des frontières.

Une partie de la recherche porte sur l'analyse des lacunes - une analyse générale des lois, des politiques et de la réglementation en matière de gestion de l'eau dans chacun des pays concernés. Selon M. Majiwa, l'idée est de

commencer avec des fruits à portée de main et non pas simplement de rédiger et d'essayer d'appliquer de nouvelles règles et une nouvelle réglementation.

Selon M. Majiwa, «l'écart commun à tous les États membres est le fait qu'il n'existe pas de politique ou de réglementation spécifique régissant les eaux souterraines. Cela signifie que la réglementation concernant la gestion des eaux souterraines est insuffisante et que les États membres éprouvent donc des difficultés à faire respecter les dispositions réglementaires disponibles».

Un autre problème, ajoute-t-il, est que les États membres de la SADC ne prêtent souvent attention qu'aux eaux de surface et parlent très peu de la gestion durable des eaux souterraines. L'analyse de la région effectuée par GMI-PLI montre que, dans 15 États membres, les ressources en eaux de surface et en eaux souterraines sont encore gérées dans la pratique comme deux ressources distinctes, avec un très faible intérêt en ce qui concerne l'élaboration d'une approche intégrée.

La phase de cadrage du projet a eu lieu en novembre 2018 et les États membres devraient disposer de la feuille de route commune pour le 30 avril 2019.

Parmi les solutions proposées par le GMI-PLI figure l'établissement d'un protocole visant à guider les accords interétatiques sur les ressources en eaux souterraines partagées dans la région. Ce faisant, la région de la SADC aura une approche stratégique de manière à répondre à l'impact du climat sur les systèmes d'eaux souterraines.

La feuille de route souligne également le rôle important que jouent la dynamique des genres et sociale dans l'utilisation des ressources en eau partagées pour garantir la protection des droits de chacun en matière d'eau. Selon la feuille de route, «des dispositions devraient être élaborées afin de faire participer activement les femmes à la prise de décisions sur les eaux souterraines aux niveaux national et régional, à la fois par des mécanismes institutionnels et en interdisant la discrimination dans l'application des lois».



TANZÂNIA PARA RECEBER O ROTEIRO DE GESTÃO DE RECURSOS HÍDRICOS PARTILHADO DA SADC

Tanzânia é única entre os países da África Subsaariana, com mais de dois milhões de cidadãos na capital do país, Dodoma, confiando nas águas subterrâneas como sua principal fonte de água. Por esta razão, Dodoma é ideal para a presidência do roteiro da SADC para melhorar a gestão de águas superficiais e subterrâneas partilhadas em todos os 15 estados membros da região.

O lançamento será liderado pelo Ministério da Água da Tanzânia, apoiado pelo Instituto de Águas Subterrâneas da SADC (SADC-GMI). Micah Majwa é um consultor institucional e de governação para o SADC-GMI e diz que as lições aprendidas com este projecto piloto serão ampliadas e implementadas em outros estados membros.

Apesar da considerável demanda de cidades como Dodoma, onde a água subterrânea representa 70% do abastecimento de água da cidade, a Tanzânia usa apenas 2% de seus recursos hídricos - aproximadamente 462 metros cúbicos por ano - uma fracção dos 21.200 metros cúbicos disponíveis.

A preparação e o trabalho de base para o caso piloto foram estabelecidos através de uma pesquisa regional encomendada pelo SADC-GMI, observando as leis, políticas e regulamentos que regem os recursos hídricos partilhados entre os 15 estados membros da SADC.

O principal projecto de investigação intitulado "Desenvolvimento Jurídico, Institucional e de Políticas nos Estados Membros da SADC" (GMI-PLI) está 65% concluído e deverá terminar em 30 de Outubro de 2019. Nela, as lacunas e deficiências são realçadas quando se trata da abordagem e gestão da SADC de fontes de águas superficiais e subterrâneas partilhadas através das fronteiras.

Parte da pesquisa é a Análise de Lacunas - uma ampla análise das leis, políticas e regulamentações de gestão de recursos hídricos em cada um dos países envolvidos. Majwa diz que a ideia é começar com casos de fácil

aproveitamento e não simplesmente elaborar e tentar implementar novas regras e regulamentos. Majwa diz que "a lacuna comum entre todos os Estados-Membros é o facto de não existir uma política ou regulamentação específica que regule as águas subterrâneas. Isto significa que existem regulamentações insuficientes em relação à gestão das águas subterrâneas - portanto, os estados membros enfrentam dificuldades em fazer cumprir os regulamentos disponíveis."

Outro problema, acrescenta ele, é que os estados membros da SADC muitas vezes prestam atenção apenas às águas superficiais e falam muito pouco sobre a gestão sustentável dos lençóis freáticos da região.

A análise da região por GMI-PLI mostra que, em 15 estados membros, os recursos de águas superficiais e subterrâneas ainda são efectivamente geridos como dois recursos separados, com um baixo apetite para o desenvolvimento de uma abordagem integrada.

A fase de definição do escopo do projecto ocorreu em Novembro de 2018 e os países membros devem ler o roteiro partilhado até 30 de Abril de 2019.

Entre as soluções propostas por GMI-PLI está o estabelecimento de um protocolo para orientar acordos inter-estaduais sobre recursos partilhados de água subterrânea na região. Ao fazer isso, a região da SADC terá uma abordagem estratégica para respostas ao impacto que o clima tem sobre os sistemas de água subterrânea. O roteiro também enfatiza o importante papel que o papel do género e dinâmica social desempenha no uso de recursos hídricos partilhados para garantir que os direitos à água de todos sejam protegidos. De acordo com o roteiro, "devem ser desenvolvidas disposições para envolver proactivamente as mulheres na tomada de decisões sobre as águas subterrâneas tanto a nível nacional quanto regional, tanto por meio de mecanismos institucionais quanto proibindo a discriminação na aplicação das leis."

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