

# SHIPO SMART Centre at the MAJI WEEK SCIENTIFIC CONFERENCE 2019

*“Leaving No One behind: Accelerating Universal Access to  
Water Supply and Sanitation in a Changing Climate”*



## Summary Report



**SHIPO**  
SMART Centre  
Tanzania  
Member of the SMART Centre Group



# INTRODUCTION

Global Water Partnership Tanzania and the Ministry of Water held the 1<sup>st</sup> Maji Week Scientific Conference on 18<sup>th</sup> and 19<sup>th</sup> of March in Dodoma.

SHIPO SMART Centre submitted the abstract from Annemarieke Maltha's assessment for SHIPO SMART Centre on "Accelerating scale up of SMARTechs for water in Tanzania, using a market based approach". 36 out of 92 abstracts were selected and SMART Centre's proposal was among the accepted ones for an oral presentation during the Conference.

Eugenia Kimaro (the SHIPO SMART Centre coordinator) together with Olais Mungaya (WARIDI project coordinator) and Leire Díez (SMART Centre officer) represented SHIPO during the event in Dodoma. The oral presentation from the SMART Centre was done on the second day of the conference (see page 8 for more detail information on the presentation of SHIPO SMART Centre).

This report provides a summary of the content of the conference following the timetable of the event. Some conclusions and recommendations for the SMART Centre are provided at the end of the document.



Figure 1: a) Entrance to the hall for the Maji Week Conference; b) Main room where the plenary sessions were celebrated; c) presentation from SHIPO SMART Centre on 2<sup>nd</sup> day; d) Olais during one of the sessions.

# CONFERENCE

## Day 1

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### OPENING PLENARY

**Participants:** Prof. Kitila Mkumbo (*Ministry of Water*), Dr. Victor Kongo (*GWP*), Eng. Mbogo (*GWP*)

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The Conference was opened with emotive speeches which highlighted the uniqueness of the conference, celebrated for the first time in Tanzania. The 3 main **goals** of this event were to

1. facilitate a platform for exchange of knowledge and collaboration among the stakeholders in the water sector,
2. promote innovative technologies, policies, etc. and
3. document practical cases in the water sector.

Under the theme line “***Leaving no one behind: Accelerating universal access to water supply and sanitation in a changing climate***”, the event had 3 **sub-themes**:

- water resources in a changing climate,
- water supply and sanitation and
- water quality.

A novelty for this year was that, for the first time, all the water-related events had been brought together to the Water week (as 22<sup>nd</sup> of March is the World Water Day). In addition, although normally the Water Week in Tanzania is focused on *water resources*, this year major attention was given to the *water supply* topic.

Some questions for reflection that were posed:

- Are policy makers doing the right decisions? Are the decisions evidence-based?
- Is civil society doing the right work?
- Are academics/scientists doing the right science and studies?

The decisions should always be based on evidence. To guide the policy-makers, researchers and practitioners should present their finding and recommendations focusing on evidence. This event posed an excellent opportunity for policy-makers, scientist and practitioners to interact with each other and develop a way-forward together, leaving no one behind.





Figure 2: Opening plenary session: a) participants of the session; b) SHIPO SMART Centre team during the session.

## PANEL SESSION      THE FUTURE OF WATER RESOURCES MANAGEMENT IN A CHANGING CLIMATE

**Participants:** Prof. Kitila Mkumbo (*Ministry of Water*), Eng. Mwaruvanda (*Iringa Urban Watersupply and Sanitation*), Prof. Mbwette (*Univeristy of Dar es Salaam*), Dr. Kateka (*GWP*), Eng. Kashilila (*Shahidi wa Maji*)

The rapid population growth in Tanzania (it is estimated that in 2100 Tanzania will be the 8<sup>th</sup> most populous country in the world with 303 million inhabitants) and the changing climate will pose a challenging scenario in the near future: water resources will be depleted while the demand for water will increase: there is a decreasing water per capita. Moreover, the expected increasing industrialization and irrigation sectors would contribute to this imbalance.

Prof. Mkumbo introduced the **2019 Act for Water Supply and Sanitation**. He addressed the enormous gap between rural and urban water supply: while in urban areas 80 % of the population have access to an improved water source, in rural areas the amount is significantly lower. However, the data are very varied from one urban settlement to other (e.g. 75% of the population have access to an improved water source in Arusha, while almost 100% in Moshi). Most of the experts and financing are in the water utilities. He introduced the **Rural Water Supply Agency (RUWASA)**, included in the new Act, as a way to improve the water governance in rural areas: decentralised centralisation, semi-professionalization of the rural water sector management. In addition, he emphasized the need to cooperate with other countries in the management of the water resources, since 7 out of 9 Basins share resources with other countries.

As a way forward, he suggested to reflect and plan on how to use water and to look for new resources, but even more important: on how to promote the efficient use of water through technologies, education and training.

Dr. Kateka focused on the importance of considering the **climate change** as a cross-cutting issue. She posed interesting questions to reflect about the challenges related to climate change:

The changes in the climate are happening very fast: how much do we know about these changes? How much is science ready to adapt to them? To what extent is Tanzania considering and implementing the agreements taken in global summits about climate change? There is a need to address climate change at national level. Social and economic changes are also taking place at a very high speed: to what extent are these changes taking into consideration the climate change? How to balance economic growth and environment? And how can we balance economic growth and water resources? How do we define water scarcity? Is it physical scarcity or economic scarcity?

Prof. Mbwette tackled the **SDG 6, 11, 12, 13, 14, 15 and 17** and reflected on the effort and the track that Tanzania (policy-makers, researchers, practitioners) are doing to reach them.

Eng. Kasilila looked at the aspects of **financing** of the future water sector in Tanzania. He emphasized the importance of monitoring the use of water and the opportunities to use other innovative manners outside the traditional revenue source (industry, stewardship approach, SMART approach of finance, environmental standard fee, etc.). For the proposed centralised-decentralisation, he suggested to correct the already known mistakes that have been made during the centralised model and to have a clear accountability between national and local levels.

Eng. Mwaruvanda remarked the importance of implementing the new policy carefully and of maintaining some of the current structures (water use associations, committees) and approaches (integrated water resources approach) through developing a proper framework. According to him, Tanzania is suffering from **economic water scarcity** and **not physical**. For example, if rainfall harvesting is implemented in dry Tanzania, there would be opportunity for two irrigations throughout the year.



Figure 3: Panel session on the future of Water Resource Management in a Changing Climate.

## PLENARY DISCUSSION      SDG 6 AND INCLUSIVENESS IN WATER SECTOR

**Participants:** Roland Titus (UNICEF) and Wilhemina Malima (SAWA)

Titus presented the new indicators on SDG 6 for Drinking water, Sanitation and Hygiene, which include the “safely managed” category at the top of the JMP global monitoring ladder. The presented data were from 2017 and although compared to the updated data

from the Water Ministry there seems to be an improvement in Tanzania, the data still show that the country is **not in the correct track to reach the 2020 goals** (85 % of the population should have access to clean water and sanitation).

On the other hand, Malima focused on how to reach the “**inclusiveness**” that the guidelines and plans mention for water and sanitation governance, policies, technologies, etc. First, it is crucial to identify the marginalized groups: women, youth, elderly, children, physically or mentally disabled people, vulnerable groups including nomads, fishers, hunters, small scale traders, etc. The inclusive approach should consider them holistically and not plan for them separately. She made some reflections on the strategy that should be followed: should it be based on equality, equity or on trying to remove the barriers from the system so that everyone has the same opportunities (when the causes of inequality are addressed)?

## **PARALLEL SESSIONS                      WATER SUPPLY AND SANITATION**

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Seven studies were presented in each of the three parallel sessions. After three or four presentations, there was room for comments and questions from the audience. The SMART Centre team was present in the “Water Supply and Sanitation” session. A brief overview of each presentation in the Water Supply and Sanitation sub-theme is provided below. Further information can be found in the Book of Abstracts.

One of the studies, by Kanyika (Water Institute), analysed the **reasons for the delays** in the implementation of **Rural Water Supply Projects (RWSP)** within the first Phase of Water Sector Development Program. Inadequate project planning and involvement of stakeholders, inexperienced technical experts, limited project and contract management skills and poor design of the RWSP were the most significant factors contributing to delays.

The presentation from Kashililah (Shahidiwa Maji) revealed that urban households in Dar Es Salaam and Morogoro face **problems of water reliability, quality, sanitation, flooding and pollution**. Moreover, citizens are unaware of who is the ultimate responsible to provide these services. This lack of knowledge together with the lack of confidence that the problem will be resolved and their fear retribution, make households not report their water problems to relevant authorities.



*Figure 4: Some of the presentations during the parallel session on Water Supply and Sanitation on Day 1.*

Kwizela, from WaterAid, presented the benefits of building entrepreneurship capacity for **liquid and solid waste businesses** through the “social return on investment”: an approach that assesses contributions beyond economic benefits.

Mkudea, from the Univeristy of Dar es Salaam presented a study on **Material Flow Analysis of faecal sludge** in unplanned settlements in Dar Es Salaam, concluding that 43 % of the generated faecal sludge is disposed to the environment. As mitigating measures with promising results, the study proposes resource recovery through co-composting and energy recovery through carbonization and briquetting of dried faecal sludge to solid fuel.

Moussa, from Zewail city of Science and Technology, shared the experience from Egypt and proposed a **step wise** approach for improving **sanitation coverage** in Tanzania: a current planning considering future development and immediate land acquisition for the ultimate needed facilities was presented, focusing on a “step-by-step development as opposed to “all or nothing syndrome”.

Hepworth, from Water Witness International, shared some of the results from their work with the private sector through the Alliance for Water Stewardship (AWS) standard; he presented the benefits from **water stewardship** for communities, government, the environment and business.

Finally, the last presenter of the session, Fayard, presented different models of innovative **valves** designed by Tecofi.

## NETWORKING SESSION

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The first day of the conference was closed with an event which brought together all the conference participants during a cocktail time by the pool of St. Gaspar gardens.



Figure 5: Networking session at the end of Day 1.

## Day 2

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### PLENARY SESSION

**Participants:** Eng. Luhemeja (DAWASA), Eng. Sanga (BORDA), Mbayaye (UDS), Otwane (LifeStraw) and a representative from Weholite

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The starting session of the second day of the conference focused on technological innovations in the water sector.

First, Luhemeja, presented the strategy of DAWASA to decrease the **Non-Revenue water**, i.e improve the amount of water sales.

Sanga presented the DEWATS Technologies (**Decentralised Wastewater Treatment Solutions**) as a solution for wastewater treatment in un-planned slums. These technologies are low-cost, made of locally available materials and following a modular approach.

The study from Mbabaye showed the most favourable conditions for bone char preparation as a **de-fluoridation** solution.

Otwane, from LifeStraw, presented innovative products based on **membrane technology** for water treatment according to the user level.

Finally, a representative from Weholite Technology, presented their prefabricated products based on Weholite technology. They have different applicability (**pipes** in the **drainage sewerage systems**, storage tanks) and the fact that they are prefabricated brings many advantages including saving a large amount of time and money, compared to other conventional solutions like concrete drainage pipes.

### PARALLEL SESSION

### WATER SUPPLY AND SANITATION

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Eugenia Kimaro, the coordinator of **SHIPO SMART Centre** presented the study from Maltha on “Accelerating scale-up of SMARTechs for water in Tanzania, following a market-based approach”. The **SMART approach** and the **SMARTechs** were presented as a solution to reach rural areas where conventional technologies are unfeasible. The work done by SHIPO SMART Centre during the past years was presented (installed pumps, produced wells, number of beneficiaries) together with the results provided by Maltha’s research: **high functionality** of the water points (higher in self-supply), increasing income for the pump owner due to **productive use**, the fact that “**privately used becomes community served**”, the **bottom-up approach** as the best marketing strategy and the role that the NGOs can play by subsidizing the first wells in a new area to create demand. From the presented challenges for the acceleration of the scale-up, the collaboration with the policy-makers was highlighted: the Tanzania national water Policy from 2012, Section 1, Sub-section 4.11 and the Groundwater Drilling Licenses Clause 17 were specifically mentioned as regulations that at the moment do not but should consider the SMARTechs.

Some of the comments and questions from the audience included: the strategy to ensure quality products from the trained artisans, more examples of SMARTechs, the strategy of



the SMART Centre on “providing training to do the fishing rod” and the measurements and distance from potential sources of contamination that the artisans use when digging/drilling a well.



Figure 6: SHIPO SMART Centre coordinator during the presentation of “Acceleration of scale up of SMARTechs for water in Tanzania, following a market-based approach.

Masige presented a study about different models of **COWSO** organizations to ensure the sustainability of the projects.

Upendo, on the other hand, talked about ways to optimize the water distribution networks through a study carried out in Mwanza city.

The presentation by Twisa revealed the **variations of annual and seasonal rainfall** and the impact they had in the rural water supply services in Wai River Basin.

Bogertman, from Simavi, highlighted the importance of **WASH for Health Care Facilities (HCF)**. Data from her joint study with WaterAid in Dodoma reveals the lack of own WASH services/facilities in HCF and the dependence on community based water supply systems which are often non-functional.

Lastly, Tulinave from Water Institute, presented a study evaluating the sustainability of the regional **water utilities in Tanzania** from a non-revenue water perspective.

## PLENARY SESSION

## CAPACITY BUILDING AND REGIONAL EXPERIENCE IN WATER RESOURCES MANAGEMENT

*Participants: Prof. Dr Jean-Marie Onema (WaterNet), Mr Makumbe (Global Water Partnership), Prof. Mayo (Tanzania Journal of Engineering and Technology)*

Prof. Onema presented the work that **WaterNet**, the regional network of university departments, and research and training institutes is performing and the opportunities offered through this network. The University of Dar Es Salaam is part of this network.

The **GCF-Global Water Partnership** was also introduced by Makumbe. The Partnership can provide assistance in developing and implementing climate resilient water projects to national entities.

Finally, the **Tanzania Journal of Engineering and Technology** was introduced by Prof. Mayo, including the process of submission and review of papers, format and annual publications.

## **CLOSING CEREMONY**

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Some **features of the conference participants** were given at the closing ceremony. The 267 participants belonged to Research field, Policy sector or Practice and there were more male participants (67%) than female (33%). In terms of education, 58% hold a masters degree, 16% a PhD while the rest were graduates. The conference had a good balance among the relevant stakeholders in the water sector: 33 % of the participants are working in the Government/Ministry, 25 % came from University and 21 % belonged to Civil Society/NGO-s; the rest were donors, research institutes, regulatory institutions, professional bodies and private firms. The attendance during the second day of the conference was slightly higher than on the first day.

The **Maji Annual Scientific Conference** is expected to be celebrated every year from 2019. The first call for abstracts for the **2020** Conference will be on the 1<sup>st</sup> of September of 2019 and the registration will be fully online. Next year, it will also be held during the World Water Week; however, the arrangement will vary a bit from this year's: Day 1 and 2 will be for EWURA, on Day 3 the Joint Sector Review will take place and the Conference will be celebrated during Day 4 and 5.

The proposal from Prof. Mkumbo was to create the "**Maji Journal**" to collect all the new papers presented during the Conference. The Journal is going to be hosted by the Water Institute and Prof. Mbwette is going to be its Chief editor. The deadline for submission of new papers presented during 2019 Conference is the 30<sup>th</sup> April.

## **POSTER PRESENTATIONS AND EXHIBITION SPACE**

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For those participants whose abstract was not selected for an oral presentation, they had the chance to show a poster about their study on a common room at the hall.

At the entrance of the conference hall was an exhibition space where different companies or NGO-s could display their products or explain about their services. There were around ten stands, among others: Weholite/Plasco with their innovative pipes for drainage systems and tanks, DPI Simba displaying different types of pipes and submersible pumps, LifeStraw showing their different filters and MajiSafi group offering different solutions for menstrual hygiene.



*Figure 7: Exhibition space at ST. Gaspar ground.*

## CONCLUSIONS & WAY FORWARD

SHIPO SMART Centre team is satisfied and grateful for the opportunity of attending the 1<sup>st</sup> Maji Week Conference. The event has been a great chance to share with relevant stakeholders the work and role of the SMART Centre and the SMARTechs and to pose the major challenges for scaling up related mainly to policy. Besides, it has been very inspiring and interesting to get to know what other people and groups are doing towards reaching the SDG 6 in Tanzania: gathering together policy-makers, researchers and practitioners has provided a much broader overview of the reality of the water sector in Tanzania. Finally, the event has also been an opportunity for networking and talking directly to participants about more concrete issues.

Some **suggestions** for the SMART Centre:

- Arrange and carry out a thorough study of all the available data regarding the SMART Centre work (number of water points, uses, beneficiaries, trained groups, small companies, trends, etc.).
- Identify those data not captured by the SMART Centre that can be relevant and develop a strategy to get them, in order to include them in the analysis mentioned in the point above.
- Develop (a) paper(s), report(s) or similar document(s) showing different findings from the above mentioned study.
- Stay tuned on the arrangement for the Maji Annual Conference 2020 and similar relevant events so that, if the team decides to attend –either as presenter or as participant-, we have enough time for preparations.
- Make use of these kind of events to do more networking.

