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THE WATER FRONT

Newsletter



(L-R) Mr. Alfred Okot Okidi, the Permanent Secretary of Ministry of Water and Environment, Dr. Callist Tindimugaya, Commissioner, Water Resources Planning and Regulation at Ministry of Water and Environment, Eng. Amayo Johnson, Deputy Managing Director Technical Services at National Water and Sewerage Corporation gave remarks at the Water Security e-conference

Water Security Virtual Conference

The Water Security e-conference was hosted by the Ministry of Water and Environment, Kampala City Council Authority (KCCA), National Water and Sewerage Corporation (NWSC), Uganda Manufacturers Association (UMA) with support from GIZ Natural Resources Stewardship (NatuRes) programme.

The e-conference was held on Thursday, September 17th, 2020 under the theme *Water Security for inclusive Urban Growth*.

The objectives of the conference aimed at strengthening dialogue between actors and bridge the gap between evidence, policy and action through dissemination of findings of the Water Security Action and Investment Plan (WSAIP) for the Kampala Metropolitan Area.

The meeting had three strategic objectives including dissemination of evidence to support investment in water security for inclusive urban development, discuss the water security agenda for Greater Kampala and the need for targeted investment actions, and to highlight the significance of private sector engagement

in realizing the water security agenda. Jordan Martindale, the Growth and Economic Management Team Leader, UK Foreign and Commonwealth Development Office gave the opening remarks.

Dr. Fred Muhumuza made the keynote address. Panel discussants included Mr. Alfred Okot Okidi, the Permanent Secretary, Ministry of Water and Environment, Dr. Callist Tindimugaya, the Commissioner, Water Resources Planning and Regulation at Ministry of Water and Environment, Mr. Anthelem Iragena from Ministry of Water and Environment, Mr. Senyondo Mansuli, the Chair of the Education and Skills committee at Uganda Manufacturers Association, Brenda Mwalukanga, the Coordinator of Lusaka Water Security Initiative, David Nonde, Senior Technical Advisor at GIZ-NatuRes Zambia and Professor Kenneth Strzepek, Senior Consultant at Industrial Economics (IEc).

The session chair was Mr. Maurice Mugisha, Deputy Managing Director at Uganda Broadcasting Corporation (UBC).

Keynote address: Exploring the link between water security and urban growth

The keynote address was delivered by Dr. Fred Muhumuza, Policy Development Analyst and Lecturer, School of Economics, Makerere and Kyambogo Universities.

Dr. Muhumuza's presentation focused on water security and urban growth including exploring the link between water security, inclusive urban growth, employment and wealth creation.

His presentation focused on how to ensure that the plans are implemented for sustainable water resources management and use. He noted that as Kampala grows and expands, there is need to facilitate internal coordination of plans across sectors to ensure coordinated and integrated service delivery.

"Data for evidence is needed in planning and decision making. There is need for coordination and planning by both the



Dr. Fred Muhumuza

public and private sector to align better with the catchment management plans. He called for the preservation of water stocks and quality to ensure adequate investments for provision of water security.

Collective action and planning needed to achieve water security

Mr. Alfred Okot Okidi, the Permanent Secretary, Ministry of Water and Environment said Water and Environment resources play an integral part in facilitating Uganda's socio-economic development. Mr. Okidi stated that collective action and planning is needed for water security. He acknowledged the financial and technical support from GIZ-IWaSP towards the development of the Greater Kampala Water Security Action and Investment Plan (GKWSAIP). He thanked partners namely National Water and Sewerage Corporation (NWSC), Kampala City Council Authority (KCCA), Uganda Manufacturing Association (UMA), Uganda Water and Sanitation Network (UWASNET) and Environmental Alert for supporting the processes of developing the GKWSAIP.

Mr. Okot said the successful implementation of the GKWSAIP is dependent on collective planning and action. It is critical that investments are made in integrated and holistic solutions that will address the multiple water security threats and Climate Change," he noted.

"Water security is a pertinent concern for urban



Mr. Alfred Okot Okidi

areas particularly Kampala. Efforts should focus on enhancing the livelihoods for the urban poor to address their demands, investments towards efficient use and management of water and environment resources, including recycling and re-using solid waste and waste water," he said.

He also noted that there is need to strengthen dialogue and bridge the gap between evidence and action. He thanked the Steering Committee members; Ministry of Water and Environment, National Water and Sewerage Corporation (NWSC), Kampala City Council Authority (KCCA), and Uganda Manufacturing Authority (UMA).

We spend a lot of money treating water because of pollution

Dr. Callist Tindimugaya, Commissioner, Water Resources Planning and Regulation at Ministry of Water and Environment said: "There has been rationing of water and we have received requests from private sectors to construct their own wells in order to access water. Because of pollution in the city a lot of money is spent to treat water. If we do not have good quality water, we are not water secure," said Dr. Callist.

He called for the need to protect ecosystems within the city. Wetlands are being destroyed. "As a result, we see flooding even when we have a small downpour of rain. We need to ensure that water is not a burden," he said.

Dr. Callist noted that there is need to strengthen coordination between players within Kampala like KCCA, NWSC, NEMA, Ministry of Water and Environment to ensure that people are held responsible for degrading the environment and polluting the city.

"The resources we are depending on are not increasing yet degradation is on the rise. Drainage channels are continuously clogged by waste and we need to address this," he said.

He said that the WSAIP made stakeholders to appreciate that they have challenges.



Dr. Callist Tindimugaya

Dr. Callist pointed out that there is need for collective action on sustainable water resources management including making investment in both hardware and software. He mentioned that the Ministry of Water and Environment had established the Water Resources Institute in Entebbe to facilitate knowledge management on water resources. He called for the need to safeguard access to adequate quantities of acceptable quality to sustain human wellbeing, livelihoods and economic development, protection against water-borne pollution, protection against water-related hazards, preservations of eco-systems.

Inaction will lead to deterioration of quality of water

The consequence of inaction will lead to further deterioration of the quality of water said Mr. Anthelem Iragena, Senior Water Office, Ministry of Water and Environment. Mr. Iragena's presentation highlighted the processes that led to the development of the Water Security Investment and Action Plan (WSAIP). He also presented the six (06) strategic goals under WSAIP that will support the realization of water security namely;

- i. To institutionalize water security to transform the concept of water security into practice
- ii. To reduce the amount of pollution loadings entering inner Murchison bay in order to increase dissolved oxygen by 85% by 2040
- iii. To reduce the volume of solid waste entering the

environment by increasing the rate of solid waste collection and recycling by 50% by 2030

iv. To dampen flood peak flows in flood hotspot areas by 40% by 2040 through sustained conservation and rehabilitation and investment in blue green infrastructure

v. To increase water supply and sanitation coverage by 50 % by 2030 in poorly served areas

vi. To strengthen the institutional framework to enable mulita sectoral inter-sectoral collaboration.

"Promoting evidence-based integrated planning for water security will involve institutionalizing water security decision support tools as well as investing in data and information gathering," said Mr. Iragena.

Private sector is involved in pollution control

Mr. Senyondo Mansuli, the Chair, Education and Trainings Committee, Uganda Manufacturers Association (UMA) talked about the role of private sector in achieving water security. "UMA contributed to the identification of holistic solutions under WSAIP. During the ideation work-shop, private sector brainstormed on potential investment ideas," he said.

He said private sector is engaged in pollution control through initiation of sustainability campaigns to promote resource use efficiency. Through the Kampala Green Industry Campaign, projects have been designed to change people's perception about use of water and waste related products.

"Private sector is also involved in piloting



joint research on technologies that promote efficient water use and waste management," he said.

The Uganda Manufacturers Association is promoting compliance assistance through trainings for the private sector, awareness-raising programs, capacity building programs and investing in water and waste management technologies.

Water security planning requires high quality data

Ms. Brenda Mwalukanga, Coordinator, Lusaka Water Security Initiative (LUWSI) shared the key results and lessons learnt following the development of the Lusaka Water Security Strategic Framework.

The key results were;

- i. The adoption of the Human Rights Based Approach (HRBA) to programming by the Lusaka City Council to facilitate planning,
- ii. Twelve ward development committees and five local council area plans were established,
- iii. Training of all 33 councilors, 50 Lusaka City Council and 460 community facilitators in HRBA,
- iv. Creation of a web-based information platform

She shared the following lessons learnt

- Addressing urban water insecurity lies largely outside of the water sector, integrated urban development, planning control and decentralization.
- Process impacts are at least as important as outcome impacts. "Empowering communities, strengthening stakeholders for capacities and foster collective leadership are all good steps towards more integrated planning and resilience," she said.
- Water security planning requires significant environmental economy and society. Its absence makes evidence based decision making and investment justification challenging. Information and stakeholder platforms can improve this over the long run.
- Water security planning requires significant high quality data spanning environment, economy and society.



Key messages from the keynote address

- i. Need for more investment to ensure water security
- ii. Need for co-ordination and joint planning by both public and private sector to align better with catchment management approach
- iii. Ensuring effective linkages of water security investments to inclusive growth and wealth creation
- iv. Ensure preservation of water stocks and quality
- v. Gather data and evidence to support decision-making
- vi. Expand sources and types of finances to ensure adequate investment for provision of water security

Leadership is committed to the water security agenda

Eng. Amayo Johnson, Deputy Managing Director - Technical Services at National Water and Sewerage Corporation (NWSC) appreciated the Ministry of Water and Environment, Kampala Capital City Authority (KCCA) and Uganda Manufacturers Association (UMA) and GIZ for organizing the meeting. "It is a clear indicator that the leadership of these institutions are committed to propelling the water security agenda in Uganda," he said.

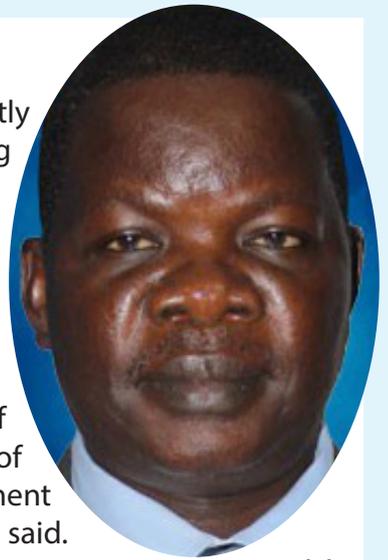
Amayo indicated that studies have shown the difficulties of water resources in accessing a country's Gross Domestic Growth adding that it is befitting that the discourse on water and security agenda during this e-conference focus on the Great Kampala Metropolitan Area which accounts to 60% of Uganda's economy.

"Water security is a big issue. In my opinion it was an appropriate theme for the conference and to target Kampala. He shared what NWSC is currently doing in the areas of water security.

"NWSC is currently completing construction of a new water treatment plant in Katosi. This is being done by Kampala Water and Lakes Resources Project at a total budget of UGX372million, part of which will see improvement in the infrastructure," he said.

Eng. Amayo noted that the measure will increase the water for production capacity for the greater Kampala to 400,000million litres per day. NWSC has completed a 50million waste water treatment capacity at Bulogobi under the Kampala Sanitation Program costing UGX554 Billion, (£150m).

"The measure helps to ensure that we are able to secure the integrity of the water sources," he said.



Role of evidence and decision support tools in achieving water security

Prof. Kenneth Strzepek, a Senior Consultant at Industrial Economics (IEC) presented at the water security e-conference.

He said using objective facts as the supporting basis for decisions seems like a sensible approach but it needs to be done in a systematic way. He said even if data is reliable, how it is used remains a key consideration. Proven parsimonious analytical tools are needed.

He said one of the main reasons people have not relied on evidence-based decision making as strongly over the years is because the evidence did not exist or was not accessible.

There is need to increase the availability of data towards rapid development and maturation of the field of data analytics.

"Moving toward water security requires new data, new models, new dialogue, new transformative institutions in the context of a common vision and goal among stakeholders," he said.

He also shared the Zambezi Strategic Plan,



Prof. Kenneth Strzepek

which is implemented by eight nations under the Zambezi water course commission.

Prof. Strzepek also shared four outcomes from the Zambezi Strategic Plans:

- i. Vision for cooperation
- ii. Win-win development plan for all
- iii. There is a co-ordinated investment plan
- iv. Agreement to protect eco-systems.

He shared that the Zambezi Strategic Plan was endorsed by the Water Resources Information System - Decision Support System (ZAWIS-DSS).

Trainings

An introduction to Catchment Based Implementation of Integrated Water Resources Management (IWRM) and Water, Sanitation and Hygiene (WASH)

The International Water and Sanitation Center (IRC Uganda) convened a training session under the title, an introduction to Catchment Based Implementation of IWRM and WASH. The training was held on zoom as part of the UWEWK 2020. A number of participants including representatives from civil society, private sector, policy makers, catchment based management committee members and students participated in the applied training.

The session facilitators included Mr. Albert Orijabu, the Assistant Commissioner for

Policy and Regulation, Directorate of Water Resources Management at Ministry of Water and Environment, Prof. Emmanuel Kasimbazi, a WASH Specialist.

The objectives of the meeting were to increase participants' awareness and skills in WASH and IWRM linkages, to enlighten participants on government policy priorities for WASH and IWRM, promote the adoption of the Catchment-based management approach to IWRM and WASH and share the impact of the watershed programme as a best practice approach.

Training on solar pumping and micro –irrigation

Ms Zoe Pacciani, an engineer with Engineers Without Borders, USA, shared the advantages of using solar powered water systems.

"The most obvious advantage, of course, is that it does not need fuel and we don't need generators, which is cost effective except for regular maintenance. More importantly, we are not damaging the atmosphere," Ms Pacciani said.

She was speaking at a training session on 'Solar pumping and micro irrigation' on Thursday afternoon at UWEWK2020 via Zoom.

Ms Pacciani added that installing a solar powered water supply system means the farmers have year round crops, hence maintaining a steady income.

"It is also ideal for areas where there is no electricity grid or where electricity is unreliable," Ms Pacciani explained.

The solar powered water system is an appropriate method for irrigation and for household use because it can be modelled to fit the use for which it is needed. She, however, cautioned about the investment.

"Perhaps the biggest disadvantage is the capital investment which can be quite costly. In addition, many farmers have challenges accessing financing for modern technologies. We must look into innovative ways for farmers to access these finances."

Ms Pacciani said there is also a capital cost of increased water storage for use when the water pump is not being used outside of "sun-hours".

"We need to sensitize communities on better ways

to mitigate this, for example fencing off the area where the solar pump system is and installing them at higher levels," she advised.

"Another major challenge is the availability of water," added Engineer Patrick Okotel from the Ministry of Water and Environment.

"Even where there is water, is the quality good? Is there available land to set up the system? And is the farmer able to sustain the system after it is in place?"

There is also the issue of over abstraction to meet the increased demand of water from ground sources.

"In India, for example, there has been ground water depletion due to over demand. This is something we have to consider especially if we are moving from domestic use to use for production," cautioned Ms. Pacciani.

There must be mitigation measures in place through the Ministry of Water and Environment and local governments to continually monitor the abstraction of ground water.

"We are training farmers to understand what this system entails. We tell them about scheduling water use, for example. We need rigorous training and follow up to make sure that the system continues to benefit the farmer," Eng. Okotel said.

He added that the use of solar water systems for farming are relatively new in Uganda, so we must give it time to develop before we can realize sustainable results.

Parallel sessions: Water and Environment security for inclusive growth – policy, practice and scientific paper presentations

Knowledge, attitudes and practices of rural households towards piped water handling and treatment

This presentation was made by Businge Otto, School of Public Health, Makerere University.

Nearly 70% of the world's population live in rural settings. By 2015, close to 84% had gained access to safe water, according to the World Health Organization (WHO). In a report by Ministry of Water and Environment 2016, Uganda's safe water coverage was estimated to be 67% (compared to 65% in 2015), however, its functionality reduced from 88% in 2015 to 86% (with water points that were functional at the time of spot-checks).

According to WHO, there are close to 37 technologies of household water treatment,

majorly in developing countries. These include boiling, filtration, chlorination, straining cloth and solar disinfection, among others. These treatment mechanisms were designed to provide an extra barrier of protection to ensure safe drinking water quality. Unfortunately, poor water, sanitation and hygiene (WASH) practices at household level in rural areas have compromised the intended targets of safe water supply.

In an effort to increase safe water coverage in Uganda, there is need to emphasize the appropriate WASH practices at household level to achieve healthier communities.

Role of private sector in improving Faecal Sludge Management

Lydia Biira, from International Water and Sanitation Centre, said improving access to sanitation facilities will not lead to health benefits unless we create solutions for safe disposal and mainstream informal service providers. According to reports, access to basic sanitation has reduced from 80% in 2016/17 to 79%. National reports indicate that only 26% of the population use safely managed sanitation services in urban areas. The population practicing open defecation in urban areas is at 12.6% and 8% in rural areas. In a case study of Kabarole District, 2% of the population is connected to the sewer, leaving 98% using on-site sanitation facilities. One percent (1%) of the onsite sanitation facilities are septic tanks, 4% are lined pits, 93% are unlined, of which 80% are abandoned when full and the other 20% use some form of (manual) emptying. However, this manual emptying is in the form of illegal dumping into wasteland and landfill sites. The majority of institutional, public and household latrine facilities are on-site which require regular emptying and safe disposal so that the environment does not get polluted and put public health at risk of epidemics. As much as entrepreneurs support the Government of Uganda's efforts to improve sanitation and waste management, there is need to address the challenges affecting the operation of sanitation services.

Impact of land use

Ms. Pamela Musimenta, Water Officer, Directorate of Water Resources Management, Ministry of Water and Environment, said over the last few decades, there has been a decrease of grassland by 18.34%, a decrease of forest cover by 0.89% and an increment in use of land for subsistence crops by 23.69%.

When forests are replaced with land use types like settlement and subsistence crops, less infiltration would be expected on water sources, hence a higher peak discharge and runoff volume. This is because land use types have an impact on stream flows.

Suitable strategies by decision makers, including land use planners, must be implemented.

Some of these could include:

- i. Controlling rapid urban development, particularly along water bodies.
- ii. Establishment of riparian buffer vegetation using appropriate plant species to increase infiltration, water storage and reduce sediment loading and surface runoff.
- iii. Further research on impacts of climate change to better understand the relationship between catchment hydrology and land use.



Faecal Sludge Management

Assessment of the faecal sludge management service delivery

Mr. Charles Niwagaba made the presentation. “Our cities face major challenges with sanitation, especially with disposal. A high percentage of the population within the city rely on basic sanitation facilities, like pit latrines. These are difficult to empty, and where good waste management can be practiced, these facilities are hard to access, or the residents cannot afford suction trucks.” said Mr. Charles.

“Municipal authorities need to develop ongoing, sustainable sanitation services. All the stakeholders need to work together to ensure proper disposal and treatment of faecal sludge. There should also be an enforcement of laws and bylaws to achieve sustainable results,” he said.



Faecal Sludge Management

Enhancing waterborne toilets to reduce water usage in schools

Jude Byansi Zziwa, Manager, Waste and Sanitation, Kampala Capital City Authority (KCCA), said 620 million children worldwide lack basic sanitation at school; 12% of schools have facilities that are not usable.

In Kampala, Uganda’s capital, with a rate of urbanisation at 5.2% - one of the fastest growing in the world – 10% of toilet stances in public schools are not accessible for use due to the high cost of water. About 70 – 75% of water used in schools is for toilets flushing. This is not sustainable.

One of the ways to reduce this cost is through the use of channel flush toilets, which reduces water usage by 90%. The challenge, though, is that this facility needs a full time attendant and if not well ventilated, produces a stench. That said, it has more advantages in that biogas technology can easily be incorporated, it needs less frequent emptying, thus has very low maintenance costs.

Channel flush toilets reduce water usage by up to 90% and the reservoir can hold about 60 litres of water.

Mr. Byansi clarified that what is flushed from the channel toilet can be directed to a bio-digester located on site or offsite to generate biogas. The bio-digester can be also be constructed just below the toilet.

He highlighted that the technology has been tried with 8 to 10 stances connected to one channel. Chances are high that at one point such seals will give way and allow foul air into the stances. The best is to vent off the odor from the channel.



Channel flush toilets reduce water usage by up to 90% and the reservoir can hold about 60 litres of water

National data shows 1% decline in access to drinking water sources

Ms. Florence Anobe, Monitoring and Learning Advisor, International Water and Sanitation Centre, said the national indicators show a 1% decline in access to drinking water sources, with 69% in FY2018/2019 compared to 70% in previous years.

Statistics show that rural water functionality has stagnated at 85% while villages served with a drinking water source stood at 66%.

Presenting the paper on Infrastructure planning: A tool for sustainable rural water services, Ms. Florence Anobe, the Monitoring and Learning Advisor, IRC said that they undertook an analysis in 2019 in Kabarole district local government when it was faced with the problem of sustainability of water supply.

Both qualitative, quantitative and observation methods were employed in collaboration with Kabarole district technical teams.

A total of 1,100 water sources were assessed and they included; protected springs, shallow wells,

deep wells, Kiosks/public tap stands and yard taps.

Quality Water Sanitation and Hygiene (WASH) asset data is a critical step towards planning for rural water sustainability at district, National and Global levels.

Ms. Anobe said the involvement of communities in planning for service, the use of WASH technologies and the role of governments, as service promoter, as well as provider, was key.

It was recommended that a holistic approach to WASH service provision, comprising multi-stakeholder planning and coordination, monitoring and supervision, financial commitments, coupled with appropriate infrastructure planning, was needed.

Ms. Anobe added that effective planning and budget allocations for operations and maintenance at national and district level are a pre-requisite for sustained access to water sources was essential.

KCCA reports improvement in sanitation

Ms. Kwebiiha Bernadette from Kampala City Council Authority (KCCA) noted an improvement of sanitation in Kampala.

“There is an increase in safely managed Faecal Sludge (FS) from 54% to 58%, Faecal Sludge collection efficiency improved from 43% to 55%, Citywide (13%) and Informal Settlement (30%) reduction in the amount of untreated faecal sludge,” Ms. Kwebiiha revealed.

However, she noted that 42% of the resident population is still accessing unimproved sanitation and assured that Kampala Capital City is working tirelessly to ensure improved sanitation for all.

Two gender assessments for women participation and decision making in Water Sanitation and Hygiene were conducted. A gender Integration Action Plan, Sex disaggregated data collection tools and an ordinance were passed by the KCCA.

Gender equity in agroforestry management

Mr. Peter Fuuna, WASO PhD Fellow, School of Women and Gender Studies, Makerere University, said forests ecosystems (natural and planted) are important for sustainable development, ecological sustainability and social inclusion.

Although gender has become one of the themes for analysis in development practices and policy discourses, it receives little emphasis in forest conservation, biodiversity protection and sustainable forest resources management.

Men and women access forest resources through socially constructed roles and responsibilities. With division of labour, women often provide labour for crop production and men provide inputs like seedlings to be bought and land for cultivation. Joint decision making exists in households where men and women complement each other in agroforestry activities.

Women make decisions in absence of men or female headed households where women solely control resources.

With regard to agroforestry systems, gardens are spaces for women to ensure food production for household production, while woodlots are for men to get household income from tree production.



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