

The

# WATERFRONT

Newsletter

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# Unlocking Economic Growth through Water and Environmental Sustainability:

## *Prof. Edward Bbaale's Keynote on Global Challenges and Solutions.*

Speaking at the 8th Uganda Water and Environment Week (UWEWK) 2025 under the Ministry of Water and Environment, Prof. Edward Bbaale, Director of the EFD Makerere Centre at Makerere University, noted the critical relationship between water, environmental resources, and economic prosperity. He emphasized that water and environmental resources are not just vital for human survival but are also engines for economic growth. However, he pointed out the paradox of widespread inequality in access to these resources, despite their abundance, and highlighted the urgency of addressing this issue for the future well-being of humanity.

Bbaale explained that water is essential for nearly every sector of economic development, including health, agriculture, industry, energy production, and transportation. Clean water improves health, leading to a more productive workforce, and is also key in manufacturing and hydropower generation.

Agriculture, he noted, is the largest consumer of water globally, using around 70% of freshwater for irrigation. Furthermore, water plays a crucial role in shipping and other transport systems. Over 1.2 billion jobs globally depend on healthy ecosystems, which further illustrates the deep connection between water and human livelihoods.

Despite its importance, Prof. Bbaale warned of several threats to the sustainability of water resources, such as climate change, pollution, and mismanagement. These challenges exacerbate inequalities and endanger the ecosystems that support millions of people. He called for immediate action to address these inequities, particularly in developing countries, where access to clean water is often scarce.

In discussing global water scarcity, Bbaale highlighted the situation in India, where over-extraction of groundwater is leading to severe shortages, with



Panel session responding to keynote presentation

expected GDP losses by 2030. Northern China faces similar challenges, relying on costly engineering projects like the South-North Water Transfer Project to alleviate water shortages. In the Middle East and North Africa (MENA), he pointed out that the region, despite housing 5% of the world's population, has access to only 1% of the world's freshwater resources. This disparity has led to heavy investments in desalination technologies, which, although effective short term, come with high economic and environmental costs. Turning to Africa, Prof. Bbaale stressed that although the continent has vast water resources, over 400 million people lack access to safe drinking water. He cited Lake Chad's dramatic shrinkage and the resulting conflict over water as an example of how scarcity can destabilize regions. He also discussed political tensions over transboundary water resources, such as the Nile River, using the Grand Ethiopian Renaissance Dam (GERD) as an example of the need for regional cooperation in managing shared water bodies.

In Uganda, Bbaale illustrated the issue of unequal water distribution, noting that urban areas like Kampala have much better access to clean water than rural regions like Karamoja. He called for policies to ensure equitable access across all regions, particularly in underserved rural areas. He also emphasized the importance of responsible water use and conservation. Bbaale praised global best practices in water management, such as Singapore's integrated approach to water self-

sufficiency, Israel's drip irrigation technology, and the Netherlands' Delta Works flood management system. Within Africa, he highlighted successes in water management, including South Africa's efforts in Cape Town to manage water demand and Rwanda's Green Growth Strategy, which integrates afforestation and clean energy. These examples show that with the right policies, countries can mitigate water scarcity while advancing sustainability.

Bbaale concluded by pointing to Uganda's successful irrigation schemes, which have improved food security and livelihoods. He called for a multifaceted approach to water management, advocating for the adoption of efficient irrigation techniques, rainwater harvesting, and stronger regional cooperation to ensure equitable water distribution, especially in regions like the Nile Basin. He also emphasized the role of public-private partnerships (PPPs) in infrastructure development and the need for climate-smart agriculture and water-efficient technologies.

In his final remarks, Prof. Bbaale urged everyone, governments, businesses, researchers, and communities to take collective action to ensure equitable access to water, protect ecosystems, and foster sustainable economic growth. He stressed that the decisions made today will have lasting consequences for future generations, and the time to act is now.



Participants attending the keynote presentation

**Panel session:**

Mr. Peter Kuria, representing the Africa Agribusiness Incubators Network, kicked off the discussion by emphasizing the importance of shifting from talk to action. He stressed the need for long-term solutions in water-efficient irrigation and climate-smart technologies to enhance productivity and improve the livelihoods of smallholder farmers.

“The world needs us to rethink solutions, investments, and technology adoption,” Peter remarked. He outlined the main bottlenecks, including under-investment in technologies that suit Africa’s environmental realities, and the unsustainable delegation of responsibility to foreign actors. To foster a thriving agribusiness ecosystem, he called for stronger public-private partnerships, focused on social value rather than profit maximization, and a rethinking of how resources are allocated.

Dr. Joyce Mpalanyi Magala, the Country Director of WaterAid Uganda, highlighted the importance of sustainable water resources management. With nearly 30 years in the sector, Joyce stressed that Civil Society Organizations must play a central role in raising awareness and advocating for policies that address the needs of communities on the ground. Her passion for ensuring equitable access to water resonated deeply, with a focus on strengthening ecosystems and building more effective partnerships for water management. Mr. Guma Gilbert, the country lead for Water.org, spoke about how financial institutions can be incentivized to support climate adaptation projects, including water conservation and sustainable agriculture. While banks traditionally focus on profits, there’s a growing shift toward responsible financing that considers people, the planet, and profit in tandem.

Guma proposed a mix of debt financing, guarantees, and partnerships to reduce the risk for financial institutions. “By offering lower-cost capital and creating innovative loan products, banks can be encouraged to support water and sanitation projects that often lack the clear capital flows required for traditional lending,” he stressed. He underscored the importance of building a supportive ecosystem to make such projects viable.

Through initiatives like Water Equity’s debt financing tools and Aqua4All’s guarantee schemes, Guma highlighted that financial institutions can be nudged towards supporting social products like water and sanitation, which are often considered less profitable in traditional banking models. He said that with the right financial backing and partnerships, the water sector can unlock new growth opportunities.

Crispus Mwemaho, the IOM Youth representative, discussed the organization’s role in enhancing community resilience to climate change. He noted that water is a crucial element of their work and the path to adaptive capacity in Uganda lies in effective water management, particularly in the face of climate variability. He echoed Peter’s call for a more coordinated approach in tackling the interconnected issues of water, agriculture, and climate resilience, stressing that government, private sector, and community efforts need to align for long-term impact.



A participant augmenting session with a comment



Some of the participants in session

# Innovations and Impacts of Programs at the Water Resources Institute

Speaking at the 8th Uganda Water and Environment Week (UWEWK 2025); Dr. Callist Tindimugaya, Acting Director of Water Resources Management at the Ministry of Water and Environment the progress of Water Resources Institute since its launch on March 21, 2018; he presented the importance of strengthening existing programs and continuing to innovate. He stressed the need to engage with partners from various sectors to further enhance these efforts.

Dr. Tindimugaya emphasized that innovation is essential for positively impacting the environment, noting that by fully utilizing available programs, effective environmental protection measures can be implemented. He also underscored

the importance of maintaining engagement, ensuring that actionable feedback is gathered, and regularly reviewing ongoing initiatives. This, he explained, is crucial for advancing conservation efforts, which ultimately improve water quality.

Gwendolyn Kyobulungi, Coordinator of the Water Resources Institute, echoed Dr. Tindimugaya's sentiments. She explained that addressing environmental challenges is central to the ministry's mission. Kyobulungi further stated that by adopting innovative approaches, the ministry is working toward more sustainable management of environmental resources. Kyobulungi also noted that significant improvements in

water resource management have been achieved through increased dialogue and leadership in advocacy, largely due to the Institute's targeted programs. These programs, she added, are designed specifically to address the challenges posed by climate change. She also pointed out that youth engagement plays a crucial role in these efforts, as demonstrated by the ministry's graduate programs that empower young people to actively contribute to environmental conservation. "We welcome innovation," Kyobulungi said, "and will continue providing platforms for continuous engagement."

Furthermore, she called for the exploration of new ways to translate scientific knowledge and innovation

into practical solutions. These solutions, she believes, will lead to the efficient and effective use of water and environmental resources, ensuring their protection and sustainability for future generations. In another example of innovation in action, Sunday Justus, an exhibitor from Mbarara, has found a way to turn water hyacinth, an invasive species that threatens water bodies into a valuable raw material. Justus is using innovative technology to crush the hyacinth and produce fish feed, demonstrating how environmental challenges can be addressed through creativity and technology.

## Panel Discussions

The panelists recounted their experiences with the water resource Institute as below: Grace Wako Katuramu, Water and Sanitation specialist at Water Resources institute.

The experience of outreach programs like visiting some sites, awareness in different communities have created awareness by striving to bring all stakeholders on board. This has ensured that stakeholders continue strengthening unity under the advocacy of innovative mechanisms. Inter-ministerial participation is always key and a

good experience in this pursuit towards achieving a better environment use. Mary Namukose, an ecologist with GIZ

I would like to thank everybody for prioritizing climate change resilient programs by participating in this water and environment week which has now become an international platform by collecting professionals from all works of life. My experience in this cause is that all of us need to drum up support by intentionally supporting legal frame works that promote sustainable use of the environment. This is expected to change or even eliminate practices that deplete trees or vegetation which is detrimental to water quality. As GIZ, we are happy that with experience, private sector engagement through onboard adoption is also key in positively affecting the expected results of achieving water for use. We will keep partnering with stakeholders who share our vision of preserving the environment through better land management practices.

Eng. Simon Anguyo, representative of United Nations High Commissioner for Refugees (UNHCR) This training of youths under

the graduates' program have provided transparent recruitment procedures and already youths have testimonies, having benefitted from the skill-based trainings. This is a great approach of bringing youths to participate in the advocacies for better water resource management.

Gilbert Guma, Country Lead with Water.org Water resources institute is performing very well in pursuit for clean water across the country. There is need to take advantage of the private sector involvement. Also, there is need to approach financial institutions and make them know they have a stake in water and environment.

Eng. Daniel Opwonya, Senior Consultant at Integrated water, sanitation and climate change Graduates are making great impacts in innovations and there is need to continue empowering young people innovate for better practices. The idea of using retired professionals is very good as it provides insightful experiences to the young people and youths in general.



Panel Session

# Experts Urged to Step Up Efforts to Guard Endangered Water Resources.

During the 8th Uganda Water and Environment Week (UWEWK 2025) celebrations, the Ministry of Water and Environment organized several parallel sessions that brought together stakeholders from the water and environmental sectors. These sessions provided valuable insights into pressing water and environmental issues. One of the key sessions focused on “Innovation for Enhanced Climate Resilience and Sustainable Water and Environmental Resource Management of the River Mpanga Catchment.”

This session was chaired by Ms. Brenda Achiro, Country Director at Water for People, doubling as an organizer together with AWMZ, Conrad Hilton Foundation, and Join for Water.

Addressing degradation in the Mpanga Catchment Area, Dr. Brian Emmanuel Guma, Team Leader at Albert Management Zone, Ministry of Water and Environment, presented findings from a knowledge, attitude, and practices survey on water resources and climate change in the catchment area. He highlighted the serious degradation challenges facing the area, particularly due to pollution and wetland reclamation, which he said is exacerbated by rapid population growth.

He noted that the area is faced with degradation challenges and the drivers include human activities within the wetlands, such as farming given the declining soil fertility elsewhere. Dr. Guma stressed that

the Mpanga catchment area is home to over three million people and supports diverse wildlife, including various bird species and chimpanzees. Despite the challenges, he pointed out that significant conservation measures have been implemented to restore the catchment.

These include promoting alternative income sources for communities affected by wetland eviction, stakeholder sensitization, and the construction of a hydrological station to provide real-time data for water resource management. Through community engagement and awareness, local residents have voluntarily offered land for reforestation.

Their goal is to plant trees on 180 hectares of degraded land.

## Wetland Conservation for Resilient Cities

Mr. Isaiah Ndungo, Country Coordinator at Join for Water, delivered a presentation on “Wetlands for Resilient Cities.” He emphasized the importance of including wetland conservation in urban planning to build resilient communities and ecosystems. Mr. Ndungo explained that cities like Fort Portal have struggled with wetland conservation, particularly as the number of wetlands in the city was not well-documented. “Wetlands were not known until recently when some of them were gazetted. The number is not known, making it difficult to protect them. Human settlements and industries continue to be established in wetlands,” he said.

Despite these challenges, Mr. Ndungo’s says they have compiled an inventory of existing wetlands, documented activities within those wetlands, and assessed the extent of degradation.

They have also developed a plan to guide the restoration of these wetlands, focusing on environmental concerns, institutional capacity building, and

livelihood opportunities.

Mr. Ndungo also expressed concern about the shrinking wetland coverage countrywide. “Available information indicates that wetland coverage stands at 13.9 percent, of which 9.3 percent is intact and only 4.6 percent has been degraded. However, recent media reports indicate that coverage of wetlands has declined from 13.9 to 8 percent. We need more research,” he noted.

The presentation underscored the importance of collaborative efforts in addressing environmental

challenges and ensuring sustainable water and resource management.

“By focusing on conservation, community engagement, and innovative solutions, Uganda aims to enhance climate resilience and secure a sustainable future for its water and environmental resources,” he said.



Session in progress

# HSC TECHNIK Hosts Field Visit - Non-Sewered On-Site Sanitation Technology:



approach ensures zero liquid discharge, meaning all effluent is either safely treated or recovered. Additionally, the system produces organic fertilizers and purified water, which can be reused.

Notably, the system operates with low energy consumption (just 0.2 kW), making solar power a viable energy source. It also requires minimal chemicals, which helps to lower operational costs in comparison to conventional sewer systems. With scalability in mind, the technology is designed to meet the needs of both urban and rural areas, and is user-friendly, requiring no specialized maintenance.

During the field session, participants raised various questions regarding the technology's operational efficiency and potential for scaling. In response, it was highlighted that the system's multi-step filtration process guarantees zero liquid discharge, while its low chemical usage leads to lower operational costs. Furthermore, the water produced by the system is safe for non-potable uses such as irrigation. Plans to increase community awareness of the technology were also discussed, including efforts to engage local authorities and the Ministry of Education. Additionally, HSC TECHNIK is working closely with government bodies to integrate the technology into national sanitation programs.

The session concluded with key takeaways focusing on the technology's scalability, sustainability, and the critical role of government collaboration and public-private partnerships for its wider adoption.

Under the framework of UWEWK 2025, HSC TECHNIK recently organized a field visit at their Technical Exhibition Center in Kiira Municipality, showcasing their innovative Non-Sewered On-Site Sanitation Technology. The session, led by Eng. Julius Bakeine Musiitenta, Managing Director, provided an in-depth look at the self-sustaining system designed to treat human waste directly at the source, eliminating the need for centralized sewer infrastructure. The technology operates independently of traditional sewer systems, making it particularly suitable for areas with challenging terrains such as waterlogged, rocky, or sandy locations. By treating waste at the point of generation, it significantly reduces environmental contamination. The treatment process includes multiple stages: solid separation, anaerobic and aerobic reactors, sand filtration, and UV disinfection. This comprehensive

The session was capped off with a tree-planting ceremony, symbolizing the positive environmental impact of the technology and underscoring the importance of sustainability in waste management.

Relatedly, in a field visit conducted at UIRI in Namanve, the vital role of water in Uganda's development was emphasized. The need for innovative solutions to address challenges like climate change, pollution, and resource exploitation was also discussed. UIRI's ongoing innovations, which include smart irrigation systems, water purification prototypes, and eco-friendly

technologies, were highlighted as efforts to tackle these issues while promoting sustainability. During the session, discussions focused on UIRI's training programs, which aim to equip individuals with marketable skills. The institute provides accommodation, feeding, and tuition-free training. However, concerns were raised regarding the underutilization of the facilities and the small number of instructors. In conclusion, UIRI reaffirmed its commitment to advancing Uganda's industrial and environmental sectors through innovation, technology, and comprehensive skills training.

## Experts Discuss the National Adaptation Plan for Water:



Participants during the presentation

Engineer Annet Natongo kicked off the session with her presentation on the journey towards creating climate-resilient WASH systems in Uganda. She discussed the collaborative efforts among various government ministries, civil society organizations, and international bodies such as UNICEF. She emphasized the importance of identifying climate risks including droughts, floods, water pollution, and other environmental hazards, and developing targeted responses. Engineer Natongo outlined a response framework that integrates solutions at the national, local, and catchment levels. Her closing remarks highlighted the stakeholder-driven nature of the WASH adaptation plan, noting that further consultations would take place before the finalization of the document. Engineer Wilberforce Kimezere followed with a detailed

presentation on the draft WASH National Adaptation Plan (NAP). He outlined the framework's five core objectives, which include strengthening governance, financing, and resilient infrastructure. He also emphasized the importance of a structured five-year roadmap, with clearly defined roles and coordination mechanisms for stakeholders. He stressed that while preliminary cost estimates had been provided, further refinements would be necessary to ensure realistic budgeting. The session also featured a lively panel discussion, where experts shared their insights on various

aspects of climate-resilient WASH services. Mrs. Yunia Musaazi the Executive Director of Uganda Water and Sanitation Network (UWASNET) spoke about the lessons learned from past emergency responses, explaining how the integration of solarization in water systems has significantly reduced reliance on fossil fuels and made infrastructure more resilient. Mr. Simon Peter Odong from UNHCR addressed how energy-saving stoves and alternative energy solutions like biogas and solar cooking are crucial for reducing environmental degradation in refugee settlements. Miss Climate Change, Ms. Sandra Namirembe, highlighted the importance of engaging youth in environmental conservation, advocating for the use of innovative methods like music, social media, and mentorship programs to make climate action more relatable to young people. Mr. Abishek from EAWAG emphasized the need for a multi-sector approach in the WASH NAP, calling for improved research-policy coordination to enhance the effectiveness of the plan. Finally, Mr. Edwin Muhumuza from Youth Go Green discussed the critical role of community involvement in ensuring the sustainability of infrastructure projects, stressing that communities must be engaged from the planning stage to take ownership of these projects.

Key takeaways included the challenges faced in designing climate-resilient WASH infrastructure, with a shift from scattered settlements to a “hub approach” for refugee settlements proving to be more effective. The importance of engaging youth in conservation efforts through creative initiatives like beauty pageants and music was highlighted, along with the need for energy-saving stoves and alternative energy sources to meet the energy demands of refugee

settlements. Additionally, the discussion on community ownership underscored the necessity of involving local populations in the planning, implementation, and maintenance of WASH infrastructure.

It was noted that Uganda has made strides in integrating climate resilience into its WASH services, but several challenges remain, particularly in community engagement, reliance on unsustainable energy sources, and the need for stronger policy alignment. The session underscored the importance of continuous collaboration between stakeholders, including government ministries, local communities, and international partners, to achieve the desired outcomes. The session’s recommendations included among others enhancing local ownership by involving communities in every stage of WASH projects, investing in alternative energy solutions like biogas and solar cooking to reduce deforestation, and increasing youth engagement through creative platforms to encourage active participation in environmental and WASH initiatives. Strengthening coordination across sectors and securing sustainable financing through innovative mechanisms like private sector investment and carbon markets are also key to ensuring the long-term success of the WASH NAP.

Key takeaways from the session included the need for a stakeholder-driven approach in WASH adaptation planning, the importance of a comprehensive strategy that combines technological and behavioral solutions, the critical role of community participation in ensuring the sustainability of infrastructure, and the pivotal contribution of youth-led initiatives in driving climate action and WASH sustainability.

the WEiS, explaining that one of the most significant features of the system is the Permits Management Portal (PMP), which handles various water-related permits, including those for construction, drilling, wastewater recharge, and business. According to Commissioner Rwarinda Edward Martin, the PMP module allows applicants to submit online applications, track their approval processes, and receive digital permits with QR code verification, making the entire process more transparent and efficient. He also highlighted that applicants must first register through local government and tax authorities, and emphasized that incomplete applications can lead to delays. The session continued with a detailed discussion on the Water Quality Management module, which Ms. Nakalyango Caroline explained plays a critical role in ensuring the safety of drinking water. She noted that it monitors the quality of over 200 dams and water bodies and explained how the system, which was once maintained in paper records, has now transitioned to a digital format. This shift makes it easier to access up-to-date information.

Mr. Mark Kyalilizo, the Database Manager for the Borehole Module, shared how this module collects and organizes data from drilling constructors, allowing for better coordination between departments and ensuring that the public has access to critical borehole data. He added that the module aims to help both private and public sectors manage water resources more efficiently. The Surface and Groundwater Database module was discussed by Ms. Irene Nanyondo, who explained that it ensures water resource sustainability by monitoring water availability and usage. She shared that the module has transitioned from a paper-based to an online format, which makes it more accessible to clients requesting specific water data. The Forest Management System, still under development, was presented by Ms. Irene Nanyondo, who outlined how it handles forestry trade permits, and nursery certifications, and supports sustainable forestry management practices. She explained that while the system is under development, it will soon allow foresters to apply for permits, register nurseries, and engage in sustainable forest management practices online. Lastly, the Data Dissemination Portal was highlighted by Mr. Deus Kirunda, who explained that it provides the public with access to policy documents, reports, and the ability to make customized data requests, which promotes greater transparency and public engagement in the Ministry’s operations. During the session, various panelists responded to questions from attendees.

One attendee asked about the public’s access to the various modules, and Mr. Deus Kirunda clarified that the Data Dissemination Portal allows the public to access policy documents, and reports, and make customized data requests. He also emphasized that while public access is a priority, the system ensures data privacy

by verifying applicants and requests. Another attendee inquired about the online permit system, and Commissioner Rwarinda Edward Martin explained that applicants must first register through local government and tax authorities. He further stated that the system provides digital tracking of applications and permits, which streamlines the process, but cautioned that incomplete applications could cause delays. The Borehole Module was also discussed in depth, with Mr. Mark Kyalilizo noting that it plays a significant role in collecting and sharing borehole data, which is vital for both public and private sectors involved in water resource management. Dr. John Obubo, a water quality expert, asked about the benefits of the water quality data available in the module, and Ms. Nakalyango Caroline responded that the module provides continuous updates on water quality data, which helps monitor compliance with both national and East African water quality standards. She also emphasized that the system plays a crucial role in ensuring safe drinking water. The development of the Forest Management System was also discussed. Ms. Irene Nanyondo explained that the system is still in progress but will eventually allow foresters to apply for permits, register nurseries, and engage in sustainable forestry practices online. She added that the transition to digital forestry management will improve efficiency and transparency in the sector. While the session showcased significant progress, several areas for improvement were identified.

Ms. Nakalyango Caroline acknowledged that public accessibility remains a key challenge and emphasized that efforts must continue to make the system’s data more user-friendly and understandable for a broader audience. Eng. Annette Kezia Nantongo recommended further integration between the different modules within WEiS. For example, she suggested that linking the Dam Safety module with the Surface Water Database would provide a more comprehensive view of water safety and management.

The panelists also stressed the importance of continuing to develop modules like the Forest Management System to ensure they are fully operational and beneficial to all stakeholders. Concluding the session, the Ministry representatives reaffirmed their commitment to modernizing their operations through digital solutions that enhance data management. Eng. Annette Kezia Nantongo reiterated that the continued evolution of the WEiS system would improve transparency, make data more accessible, and strengthen water and environmental management efforts across Uganda. She also stated that ensuring the system remains accessible to both the public and private sectors is crucial for supporting sustainable water and environmental practices.

## Redefining WASH Data Management; The Role of WEiS:

The Ministry representatives explained that the WEiS system is designed as a centralized platform for integrating and managing multiple databases across MWE. It aims to streamline the monitoring, management, and dissemination of data related to water resources, water quality, and forest management. Eng. Annette Kezia Nantongo, the session’s lead presenter, provided a comprehensive introduction to



Participants during the presentation

# Integrated Solid Waste Management Training by ATC:

Under the context of UWEWK 2025, the Appropriate Technology Centre (ATC) recently held a training session focused on Integrated Solid Waste Management, with a special emphasis on the environmental dangers posed by polythene bags, commonly known as buveera. This training was part of ATC's ongoing efforts to provide sustainable solutions for waste management in Uganda. Premised on the fact that polythene bags remain a significant environmental threat, often ending up in the environment due to poor solid waste management practices. Many people lack the knowledge and skills to manage waste effectively, which exacerbates the situation.

In response to this growing problem, ATC launched an innovative buveera management project dubbed; The Buveera

Menace. The project aims to raise awareness about the environmental hazards of improperly disposed buveera while providing the skills necessary to repurpose these bags in an environmentally friendly manner. This initiative encourages creative solutions to manage waste and protect the environment. Additionally, ATC is promoting the use of Black Soldier Flies Larvae (BSFL) as a sustainable solution for waste management. This technology offers multiple benefits, including tackling solid waste management issues, improving sanitation, and supporting sustainable agriculture. Furthermore, it helps farmers adapt to climate change by providing them with an eco-friendly and cost-effective solution to waste disposal.

A key aspect of ATC's strategy is community engagement and capacity building. At the grassroots

level, ATC empowers households to utilize BSFL technology to address pressing waste management and agricultural challenges. Miss Ashabrick Nantege, ATC's manager, shared inspiring success stories from local farmers. One such farmer started with just 1 kg of BSFL larvae and, through composting, produced 27 kg of compost for her banana plantation. The farmer was also able to sell 1 kg of BSFL to a neighbor, showcasing the economic and environmental potential of BSFL farming. The benefits of BSFL technology are vast. Not only does it provide an innovative way to manage organic waste, but it also offers a sustainable and low-cost solution for farmers. Beyond waste management, the technology helps produce nutrient-rich compost for agricultural use, thus contributing to improved crop yields and soil health.

During the training, concerns were raised about the lack of market availability for BSFL products, despite their affordability and environmental benefits. Mr. Duncan Serwadda and other participants pointed out the challenge of consumer reluctance to embrace BSFL-based products, with many still favoring traditional products like charcoal. Miss Ashabrick Nantege attributed this challenge to deeply ingrained mindsets but expressed optimism that with continued education and advocacy, attitudes would change.

In addition to the buveera management project, ATC is running a bio-enzyme initiative aimed at improving the functionality of institutional pit latrines. The project is being implemented across 20 institutions, including schools, healthcare facilities, and places of worship. Bio-enzymes derived from organic waste are being tested to enhance pit latrine operation, contributing to better sanitation standards in these facilities.

During the training, Miss Asimwe Moraine inquired about the

potential for bio-enzymes to be used as a pest control solution for plants, specifically targeting caterpillars. Miss Ashabrick clarified that, although the bio-enzyme product has not been tested for pest control, the suggestion opens the door for further research and development. ATC is committed to exploring this possibility and expanding the product's range of applications; she added.

## Water Testing, A Crucial Step in Ensuring Safe Water for Consumption

"The incidences that were found out were not on pathogens but on the community settled at Lake Victoria. This monitoring was done with the partnership of the ministry of health," he added. Gaba disclosed that they are encountering difficulties due to the absence of a once-effective task force, which has hindered the monitoring of water catchments. "Therefore, for that matter, the ministry of health should come on board to support the monitoring of these water catchments. Monitoring is still challenging in that there is use of graphs that are generated by AI," he added. Vallenge Uragiwenimana, the Principal Environmental Health Officer at the Ministry of Health (MOH), said the ministry is making significant efforts to improve by gathering samples from both sewered and non-sewered areas. He said this was recently done in Kitezi through sample collection.

Dr. John Obubu, the Assistant Commissioner for Quality Control Inspection and Standards at the Ministry of Water and Environment, stressed that the ministry is enhancing the frequency of water quality monitoring by setting up testing laboratories. Obubu noted that these facilities have been established in four regions: Mbale, Fortportal City, Lira, and Mbarara. "The ministry is continuously monitoring waste water in Kampala with national water that is upgrading the national water quality laboratory to check for many micro-organisms," he noted. However, he disclosed that the ministry encounters several challenges, such as insufficient equipment and a lack of reagents.

Obubu mentioned the necessity to restore monitoring efforts in Kampala, particularly concentrating on micro-organisms. Gloria Mirembe, a representative from KCCA, emphasized the importance of considering changing seasonal patterns, noting that there is significantly less sludge during dry seasons compared to the rainy season.

"We need to also disseminate back the data to communities such that they are aware of the pathogens in their areas," she added.

Water testing has been highlighted as a critical step in ensuring the quality of water resources before they reach consumers. Without proper testing, experts explained that water that is meant to quench thirst can become harmful instead. Kang Seju, an environmental monitoring expert specializing in community health in Kampala, noted that identifying representative sampling points is key to monitoring common waterborne diseases. He observed that in Kampala, 22 sampling points have been carefully selected, reflecting different socio-economic demographics within the city. He stressed that points chosen by experts help provide a broad picture of water quality across the region. Seju stressed that through collaborative efforts, experts have been able to predict the levels of pathogens in the water at each sampling point.

They use a scale from 1 (lowest) to 5 (highest) to indicate the predicted pathogen levels. Job Gaba from the National Water and Sewerage Corporation (NWSC) stated that the organization oversees the water catchment regions surrounding Lake Victoria.



Ms. Nantege A. from ATC making a presentaion





P.S. of Ministry of Water and Environment Dr. Alfred Okot Okidi (3rd left) with other officials after the launch the Peat4People approach

## Peatlands: Essential for Biodiversity and Climate Change Resilience:

Peatlands play a crucial role in carbon sequestration, supporting biodiversity, and enhancing resilience to climate change, which is essential for effective adaptation strategies. Dr. Malte Grossman, Head of Regional Projects at the Nile Basin, emphasized the importance of increasing training efforts to raise awareness about the sustainable conservation and protection of peatlands.

A peatland is a type of wetland characterized by saturated

conditions that inhibit the complete decomposition of plant material, leading to the formation of peat, a carbon-rich soil layer.

He advocated for comprehensive management of peatlands across borders, utilizing climate finance to support nature-based solutions for climate challenges. He noted that peatlands can be negatively impacted by drainage resulting from excessive water flow.

To mitigate environmental issues, Dr. Grossman recommended

maintaining the moisture levels of peatlands without any disturbances. Elizabeth Rams, an environmental conservation advocate, pointed out that emissions from peatlands differ from those from forests, highlighting the need for financial support dedicated to peatland conservation alongside strengthening social structures.

Rams also called for the alignment of legal frameworks to ensure the protection of both wetlands and peatlands, thereby enhancing environmental security.

### Panel discussions

Experts gave views about peatlands conservation approach as below: Semambo Muhammed Assistant Commissioner, Climate Change Adaptation with Ministry of water and environment.

“The main challenge in peatland conservation is that peatland regulation is lacking due to the challenge of lack of sufficient data on peatlands. We need to get data to help achieve some targets as we operationalize carbon project law of 2021. The frame of this law was concluded pending formulation to the wide scope,” she noted.

Dr. Daniel Waiswa, Senior lecturer school of biodiversity at Makerere University We have some data about wetlands, forests, but about peatlands, there is limited data and this affects the direction of conservation because there is benchmark. There should be a central place where data is collected, to facilitate better practices following what is on ground.

Prof. Jean Nduwamungu, Senior lecturer University of Rwanda noted that, peatlands appear in the National environment and policy of 2018 and there are laws about prohibition of activities around peatlands. “We believe that stringent laws help achieve the desired environment that all of us want to see opposed to activities that harm the environment”.

Nassuna Mirembe, Director Technology For tomorrow: “Innovatively use local raw materials that are linked to environment as this promotes also sustainable use of the environment. Peatlands is an important biodiversity that attracts proper and sustainable environment use”.

Simon Peat, Sustainable Peatland manager at Peat4people : “We pledge to offer capacity building to train more people offer innovative skills that benefit the survival of peatlands. There is need to develop management guidelines based on assessment to fast track development of process to manage peatlands”.



## Scientific Papers: Equitable And Sustainable Use of Water and Environment Resources for Improved Incomes and Livelihoods.

led by Dr. Patrick Musiguzi, this session featured a variety of scientific papers presented by researchers, all centered on the theme of “Equitable and Sustainable Use of Water and Environmental Resources for Enhanced Incomes and Livelihoods.” One notable presentation was by Sarah Akello and Andrew Hanginga from Haga Water Limited Services, titled “A Drop of Hope: Implementing the Use of Biosand Filters in Agoro Central, Agago District.”

Samuel Franklin Tumuhairu from Mountains of the Moon University shared insights in his paper, “Factors Influencing Households’ Willingness to Pay for Watershed Services in the Mubuku-Nyamwamba Landscape, Kasese District.” His research aimed to explore what drives households to invest in water services. His findings revealed that the primary service was domestic water at 32.5%, followed by water for livestock at 20%, sand mining at 11.3%, and agriculture at 10%.

The introduction of his paper defined watersheds as land areas that gather and direct water to common discharge points. In another presentation, Gilbert Byamugisha, Manager of Umbrella Water and Sanitation, along with Boby Otyema and Joshua Lule, discussed their paper titled “Investment in Water and Environmental Resources for Improved Livelihoods and Incomes Among Low-Income Households in the Midwestern Region of Uganda.” They emphasized the introduction of a prepaid system for low-income settlements, particularly in Kampala. This initiative includes a lifeline tariff of 1,000 shillings for the first unit in certain areas, such as the Central Umbrella, and a subsidized connection fee of shs100,000 provided by the Ministry of Water and Environment. They also mentioned a nationwide effort to promote pro-poor water service delivery models through replication, monitoring, and advocacy.

Rita Kiteme, a Sociologist from the Ministry of Water and Environment (Albertine Water Zone), presented her paper titled “Scaling Up the Catchment-Based Integrated Water Resources Management Approach for Equitable and Sustainable Development.” The objectives included monitoring water quality and levels, along with

recommending the use of drones for overseeing water resource catchments. Mr. Henry Stanley Mbowa from the Ministry of Water and Environment also delivered a presentation titled “Enhancing Community Livelihoods through Rainwater Harvesting and Soil Water Conservation in the Sebei Sub-region of Uganda.” The aim was to evaluate how water harvesting affects community livelihoods in Sebei and across Uganda, highlighting the advantage of lowering water accessibility costs.

It was suggested that the government should extend support for similar initiatives to other areas facing water shortages due to extended dry spells and the effects of drought, ultimately improving living conditions. Additional papers presented include: Data-driven modeling of wastewater ponds in Tororo, focusing on the effects of influent and climate change on treatment efficiency; Corporate Governance and the sustainability of agricultural cooperatives in Uganda, aimed at promoting fair use of water and environmental resources for better livelihoods; The role of peatlands in enhancing water quality and improving livelihoods in central Uganda; The potential of de-carbonizing water hyacinth as a material for briquette production, offering an energy solution in Uganda; Integrating market-based strategies to promote sanitation and hygiene practices in Kamuli District, Uganda; and the application of climate-smart agricultural practices to improve food security among refugee communities.

Other topics included: The impact of tariff policy on the financial performance of public water utilities; Financing sanitation initiatives through results-based approaches at the community level in Uganda; GIS analysis for predicting fecal sludge characteristics across cities; Promoting equitable and effective water resource management through the RUMIS collaborative digital innovation; and improving water use efficiency and crop yields on smallholder farms through a sensor-based irrigation approach for climate-smart agriculture in Uganda.



Participants in session 29 on Equitable and sustainable use of water and environment resources for improved incomes and livelihoods.



Listening to the presenter.



Mr. Raphael Okoth from the sanitation and hygiene fund presenting to the participants in session 29

# Policy Dialogue on Natural Capital Accounting for Nature-Positive Economic Planning.

The Policy Dialogue session focused on the vital integration of environmental sustainability into Uganda’s development agenda. Mr. Ochari Denis, Head of Planning at the Ministry of Water and Environment (MWE), acknowledged the efforts of GIZ and other partners in organizing the event. He highlighted Uganda’s fourth National Development Plan (NDP4), which prioritizes sectors such as agro-industrialization, tourism, oil and gas, and science and technology. He referenced a World Bank report emphasizing that no nation can achieve sustainable growth without effective environmental management, stressing the need for responsible resource use alongside economic expansion.

In his speech, Mr. Denis shared a message from the Permanent Secretary, reaffirming Uganda’s commitment to integrating sustainability into its development strategy. He stressed the importance of accounting for natural resources like forests, wetlands, and water in national planning and budgeting processes, emphasizing evidence-based decision-making to support growth and sustainability through macroeconomic modeling. Dr. Malte Grossmann, Head of Project at GIZ, outlined how Uganda’s adherence to global climate agreements, such as the Paris Agreement, influences its national planning. He pointed out the rapid growth of Uganda’s economy and the crucial role of investments in energy and infrastructure to ensure a low-carbon, climate-resilient future. He also highlighted the ongoing shift in Uganda’s economic planning to include natural resource management, particularly through the DIAPOCE project, supported by Germany.

Dr. Sam Mugume from the Ministry of Finance discussed the Integrated Macroeconomic Model (IBM) and its role in assessing investment scenarios while noting the absence of natural capital in current models. He emphasized the need to incorporate natural resource parameters into planning, especially considering the growing importance of forests, wetlands, and water in Uganda’s development. Ms. Lucy Lyango, Assistant Commissioner for Wetland Management at MWE, presented findings from a study on the Nakivubo Wetland, demonstrating the financial value of ecosystem services such as water purification.

She stressed the importance of factoring these values into policy and decision-making processes for better natural resource management. Mr. Godwin Kamugisha from NEMA discussed how Uganda is already integrating natural capital accounting into national development plans, particularly through the NDP4. He highlighted collaborations with various agencies to develop sector-specific accounts, such as for tourism, biodiversity, and land degradation, emphasizing the need for educating policymakers on the value of preserving natural resources.

Other key contributors included Mr. Micheal Ahimbisibwe from the National Planning Authority, who emphasized the role of climate change goals in Uganda’s development planning, and Mr. Ahumuza Keith from UBOS, who acknowledged the data challenges in natural capital accounting but noted ongoing efforts to improve environmental and climate change statistics. The dialogue concluded with a call for continued collaboration across sectors, particularly between the Ministries of Finance, Water and Environment, and National Planning. One of the key takeaways was the need for a National Resource Taxonomy to map Uganda’s natural assets accurately, supporting future economic planning. The session underscored the importance of better data systems and macroeconomic modeling to incorporate the environmental costs and benefits of natural resource use.

Ultimately, the session affirmed that Uganda’s future economic growth is intrinsically linked to the health of its natural environment. By integrating natural capital into decision-making.



Dr. Malte Grossmann delivering his speech

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