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REPUBLIC OF KENYA

KENYA WATER INSTITUTE KEWI Fountain Of Water Knowledge

WEEKLY Newsletter

June 08 -14 2024

KEWI and Gatsby Africa Exchange Grant Agreements; Extend their Collaborations to the Second Phase

KEWI CEO Dr. Leiro Letangule EBS, (In white shirt) and Gatsby Africa Program Director Mr. Abdi Wario Bonaya exchange the signed Grant Agreements for joint programmes at KEWI Headquarters, Nairobi.

BY BRITNEY MOKEIRA

Kenya Water Institute (KEWI) and GATSBY Africa have formalized a significant partnership by signing a grant agreement aimed at addressing the critical issue of Non-Revenue Water (NRW) in Kenya. This collaborative effort seeks to enhance the operational efficiency and sustainability of water services across the country.

The project, which is set to run between June 2024 and March 2025, encompasses several strategic initiatives designed to transform the water management landscape in Kenya. The key components of the project include marketing and visibility enhancement, which will significantly help in the promotion of KEWI's services and its role as a leader in water management education and innovation. Additionally, the grant will fund the acquisition of advanced NRW

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KEWI and Gatsby Africa Exchange Grant Agreements; Extend their Collaborations to the Second Phase

equipment and tools, ensuring KEWI is equipped with state-of-the-art technology.

A comprehensive research study will be conducted to explore innovative approaches and best practices in NRW management, adding to the existing knowledge in this field. The project also aims to up skill both senior and mid-level technical personnel in NRW management, enhancing the capacity of KEWI's staff to deliver high-quality training and support to water service providers.

The NRW project is designed to achieve several transformative goals. It will enhance the capacity of KEWI's key training personnel, equipping them with the necessary skills and knowledge to deliver effective management training.

Coming at a time when KEWI has already established and is operationalizing a dedicated center of excellence for NRW management, the grant will held stamp the centre as indeed a regional hub for training, research, and innovation.

"The grant will boost KEWI's ability to undertake ongoing research and development in water service delivery, fostering continuous improvement and innovation in the sector. Furthermore, the project will facilitate the strengthening of KEWI's systems for delivering skills, innovations, and research, ultimately leading to improved performance of water companies in Kenya," said Dr. Letangule.

The signing of the grant agreement marks a pivotal moment for KEWI and GATSBY Africa, reflecting a shared commitment to addressing the concern for Non Water Revenue in Kenya.

Procurement for a mobile service laboratory and workshop for the NRW training and consultancy services was termed as one of the ambitious deliverable as it would enhance the extension of the vital services far and wide.

The partnership will highlight the importance of collaborative efforts in tackling complex challenges in the water sector. Through this initiative, KEWI and GATSBY Africa are set to make significant strides in enhancing water management practices and ensuring the sustainability and efficiency of water resources in Kenya.

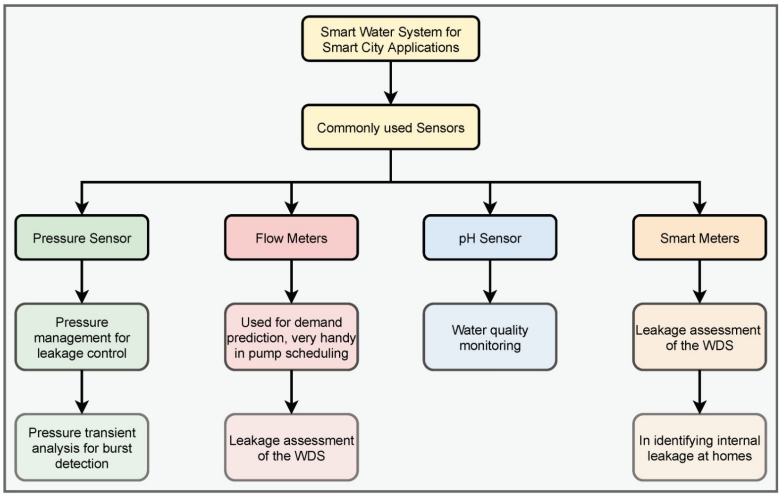
The grant agreement between The Kenya Water Institute and GATSBY Africa represents a significant step forward in the quest to reduce Non-Revenue Water in Kenya. With a comprehensive approach that includes capacity building, research, and system strengthening, the NRW project is set to make a lasting impact on the country's water management landscape. As the project unfolds, it promises to enhance KEWI's role as a center of excellence in water management, driving innovation and improving water service delivery for the benefit of all Kenyans.

RESEARCH

Capacity Building for Effective Water Supply and Non-Revenue Water Management Using Smart Water Systems

BY ERIC K. WAMITI

Smart Water Systems are transforming management of water supply and non-revenue water (NRW) by Water Services Providers (WSP's). By integration smart infrastructure, these systems are able to monitor, manage, and optimize water distribution, making the process more efficient and effective. Key components of a smart water system include smart meters, smart water pressure valves, leak detection acoustic systems, Sensors, Data transmission and communication network, Data analytics and visualization tools, Control systems, Monitoring devices, Remote control capabilities and Integration of this infrastructure into a computerized Spatial Enabled system. This system helps WSP's to quickly identify and resolve issues, reducing water loss, improving service delivery and efficiency of the water supply system.



A flowchart of a smart water system for smart city application.

The Kenya Water Institute (KEWI) is recognized as a leading trainer in NRW management in Kenya. KEWI supports water providers across the country through its specialized training and consultancy services. Their training programs build the capacities of water managers and technicians on effectively use smart water system components. This knowledge is crucial for pinpointing leaks, managing water pressure, and ensuring accurate water distribution and usage measurements.

KEWI's initiatives are strongly backed by Gatsby Africa. This organization has supported KEWI in establishment of an NRW center at the institute. Gatsby Africa has provided resources to develop comprehensive training materials and supports the center's operations. This partnership will enhance the capacity of local WSP;s to manage their resources more efficiently, leading to significant reductions in NRW through capacity development.

Additionally, KEWI receives support from the Ministry of Water, Sanitation and Irrigation and the Japan International Cooperation Agency (JICA). These organizations have been instrumental in developing an NRW curriculum and providing advanced equipment for training purposes. Their contributions will ensure that KEWI's programs are current and relevant, incorporating the latest technologies and methodologies in water supply and NRW management.

The collaborative efforts of KEWI, supported by Gatsby Africa, the Ministry of Water, and JICA, are paving the way for more efficient and sustainable water supply management in Kenya. Through advanced training and the adoption of smart water technologies, Kenya is making significant strides in reducing non-revenue water and ensuring a more reliable water supply for its citizens. These initiatives will serve as a model for other regions facing similar water management challenges.

Mr. Eric K. Wamiti is KEWI Deputy Director, Academic Affairs

Institute Donates Bedding to Nairobi West Prison

Deputy Director Academic Affairs Mr. Eric Wamiti (right) hands over a donation of beddings to Chief Inspector Anthony Sakwar, Nairobi West Prison. KEWI donated a total of 400 bedding TEXTILES to the correctional

BY PIUS KIMANI

Kenya Water Institute (KEWI) has donated an assortment of branded beddings to Nairobi West Prison as a mean to enhance its community outreach and Corpoaret Social Responsibility aspect of its mandate.

In a brief ceremony presided over by Deputy Director, Academic Affairs Mr. Eric Wamiti, the institute donated 153 blankets and 247 bedcovers which will all be used by the inmates at the correctional facility and go a long way in supplementing what they have,

While receiving the donation, Chief Inspector Anthony Sakwar praised KEWI for considering the facility. He noted that the action indicated the close relationship the institute has cultivated with the local community and added that the facility was indeed indebted to the institute.

Mr. Sakwar said that he was elated that KEWI opted to extend the donation to them and said that such an action meant well for the two organizations going forward.

His sentiments were echoed by Mr. Wamiti who expressed the institute's appreciation to the facility for accepting the donation. He noted that KEWI has a duty to come through for the needy community and was indeed keen to do that to everyone.

FEATURE

Ensuring Survival: The Kenya Water Institute's Path to Water Sustainability

BY JOHN KITONGA

At the core of Kenya's efforts towards sustainable water management is the Kenya Water Institute (KEWI), a symbol of hopefulness and ingenuity within water industry. By constantly committing itself to advancing expertise, inspiring creativity, and fostering partnerships, KEWI stands at the frontline of endeavors to safeguard water reserves for the future generations. In this featured narrative, we explore the diverse initiatives and significant undertakings led by KEWI, revealing its crucial position in sustaining both life and livelihoods throughout Kenya.

Empowerment through education

At the heart of KEWI's mission lies its commitment to educating and empowering individuals in water management. Through a variety of artisan, certificate and diploma, programs prepare a fresh cohort of water experts with the needed knowledge and abilities to tackle intricate water issues. Covering areas from hydrology to sanitation, students take part in an all-inclusive curriculum combining theoretical learning with practical exposure, preparing them to positively impact the water industry.

Hub for Research and Innovation

KEWI serves as a center for research and innovation, pushing the boundaries of water science and technology. With front-line laboratories and research spaces, it nurtures an environment conducive to groundbreaking tasks addressing pressing challenges of water, spanning from monitoring quality of water to developing methods for renewal of groundwater. Through partnerships with government bodies, academia and players in water sector, KEWI leads the way in groundbreaking solutions poised to transform techniques for water management as well as preservation of water reservoirs for future generation.

Community and Public Outreach

Outside its campuses, KEWI reaches out to communities throughout Kenya, providing them with education and resources for sustainable water management. Through several activities for community engagement like demonstration projects, workshops, and training sessions, KEWI works closely in collaboration with stakeholders at the local levels to support water conservation, improve availability of water, and reinforce resilience to effects due to climate change. By upholding teamwork and community participation at the grassroots level, KEWI is driving positive transformations and promoting a sense of responsibility for resources related to water in the entire nation.

Advocacy and Policy Influence

At the lead of KEWI's priorities is its devotion to influencing policies and guiding decisions that impact on governance and administration of water. Through campaigns on advocacy and policy discourse, KEWI strengthens water experts' voices and promotes policies emphases on priorities such as water security, fairness, and sustainability. Serving as an advisor to government institutions and policymakers, KEWI plays a critical part in shaping the forthcoming course of water industry in Kenya, guaranteeing its adaptability and effectiveness in addressing changing circumstances.

Conclusion:

With its unwavering commitment to education, research, community involvement, and advocacy, KEWI is creating the groundwork for a future where water security is guaranteed, every drop is cherished, and all lives flourish.

Ensuring Water Equity: Empowering Kenya's Indigenous Communities

BY LEMALI DENNIS

Amidst rapid urbanization and development in the 21st century, access to clean water remains a pressing issue not only to the wider population but also mainly to indigenous communities in Kenya such as the Ilchamus, Maasai, Samburu, Endorois, Ogiek, Sengwer, Pokot among others. It is estimated that pastoralists comprise 25% of the national population, while the largest individual hunter-gatherer community amounts to approximately 79,000. They make up most of the indigenous population. Ensuring water equity for these communities is a challenge deeply rooted in historical injustices and ongoing struggles ranging from exclusion & marginalization, political discrimination to dispossession of land which has resulted to limited access to vital resources such as water. Today, many indigenous communities continue to rely on distant and often contaminated water sources, leading to waterborne diseases.

Kenya's Constitution recognizes the right to clean and safe water as a fundamental human right under chapter four as well as in subsequent legislations. In addition, Kenya has ratified several international conventions such as the universal declaration of human rights among others. However, implementation and enforcement of these rights remain a challenge. For instance, with a population of approximately 54 million, 15 million Kenyans lack access to safe water. A high proportion of this being made up of indigenous communities.

The impact of water access challenges to indigenous communities cannot be emphasized enough. It not only affects health but also livelihoods and cultural practices. Despite these challenges, grassroots initiatives led by Indigenous leaders, organizations and governments are making strides in addressing water inequities. By focusing on research projects and sustainable water management practices such as rainwater harvesting and community-owned water infrastructure, communities are empowered to take control of their water resources. Incorporating Indigenous knowledge and practices into water management is indeed crucial for achieving water equity and sustainability. Indigenous communities often possess deep-rooted wisdom and sustainable practices that have been developed and refined over centuries. These traditional water management systems are not only effective but also inherently equitable, as they prioritize the needs of both present and future generations while respecting the interconnectedness of ecosystems.

Ultimately, embracing Indigenous wisdom in water management is not just a matter of equity but also of sustainability and resilience. It requires a shift towards more holistic and inclusive approaches that recognize the inherent value of diverse perspectives and knowledge systems. By doing so, Kenya can chart a path towards water security that is both equitable and environmentally sound.

Supporting Indigenous-led initiatives, advocating for policy reforms, and amplifying the voices of marginalized communities are essential steps towards realizing water justice in Kenya.

RESEARCH

Assessing the Farmers' Perceptions towards the Use of Humanure for Agricultural Sustainability

A Faecal Matter Treatment Plant under construction at Oloolaiser Water and Sewerage Company in Kajaido County. KEWI is implementing a project that seeks to raise the acceptance of the GTS- treated humanure as an alternative to inorganic fertilizers.

BY BEATRICE LANG'AT

The Institute through funding by the African Development Bank is implementing the project "Improving public health and enhancing technical skills of youth in Kenya through sanitation technology transfer. Under the Knowledge Management and Publicity component of the project, a research on Farmers' perceptions towards the use of humanure in Tharaka Nithi and Kajiado Counties for Agricultural Sustainability was undertaken.

Despite its numerous benefits, a research on the adoption of Green Toilet System (GTS), (also referred to as the Urine Dry Diverting Toilets (UDDTs) has not been widespread in Kenya. GTS have the potential to contribute to improving sanitation coverage and resource recovery (of humanure).

However, several glaring shortcomings hinder their adoption. One such challenge is the proper use of GTS facilities. Users must be educated and trained on how to correctly utilize the technology to maximize its benefits. Without proper understanding and adherence to usage guidelines, the effectiveness of the system may be compromised. The other hindrance to widespread adoption is the lack of treatment facilities. Proper treatment of the collected waste is essential to ensure that it is safe for use in agriculture. Without access to treatment facilities, the viability and safety of the final product may be questionable, reducing the acceptance of the GTS-treated humanure as an alternative to inorganic fertilizers.

The perception and acceptance of the end product by farmers and other users also play a significant role in the adoption of GTS. Socio-cultural and economic factors, as well as demographic considerations, can influence people's opinions and willingness to adopt the

RESEARCH

Assessing the Farmers' Perceptions towards the Use of Humanure for Agricultural Sustainability

the technology. Additionally, factors such as the design and user-friendliness of the system, the fertility level of human waste compared to inorganic fertilizers, and the potential effects on food crops can impact acceptance.

To address concerns related to the quality and safety of the end product, testing of the treated waste is crucial. Experimenting in agricultural fields can serve as a practical demonstration of the value of the treated waste and provide a basis for advocating for its use to a broader audience.

The study revealed significant gaps in awareness and uptake of GTS technology among respondents from Tharaka Nithi and Kajiado Counties. A substantial 75% of the respondents were unaware of the GTS technology, with varied levels of exposure across the counties and demographic groups.

The relationship between design factors and GTS technology's usability was explored, confirming a positive correlation between exposure and the likelihood of recommending the technology. Notably, higher exposure was associated with fewer reported difficulties, supporting the idea of a learning effect or increased familiarity with the technology.

Farmers' perceptions of using human manure for agricultural purposes were explored, revealing a reluctance to adopt this practice despite awareness of its benefits. This reluctance, consistent with previous studies, underscores deep-rooted cultural and psychological barriers that must be addressed to promote sustainable human manure use in agriculture.

The study findings reveal gaps in the uptake and awareness of GTS technology hence a need for continual research, development and implementation of awareness campaigns so as to enhance their understanding.

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Quote of the Week

"What you do makes a difference, and you have to decide what kind of difference you want to make." - ***Jane Goodall***

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How Safe Is Your Bottled Water?

BY PETER K. MWENDWA

The preferences in the sources of drinking water have rapidly changed as portrayed by the number of purifying water kiosks opened in our urban areas countrywide. More and more people are shifting from drinking their in-house tap water to water bought from a distiller or purifier. As per a research report by the United Nations Educational, Scientific and Cultural Organization's (UNESCO) on consumer preferences, most people have moved towards consuming bottled water, citing their dissatisfaction with the taste and health risk concerns associated with tap water.

According to a report in the Journal of water and health, social status, quality of water and lack of trust in public water companies are among the factors that have influenced this shift.

The sale of bottled water has dramatically increased in recent worldwide. The rise in health-consciousness among consumers on water-borne diseases and a demand for safe and healthy consumables is a leading factor in the increased demand for bottled water.

Despite there being nothing wrong in preferring bottled water over tap water, consumers need to be cautious about the quality of water in their bottles. Media reports warning that there are cunning water bottling businesses in Kenya have been published. Some had been previously nabbed for bottling and selling tap water to consumers, passing it off as bottled and purified water. In most places you travel to, you will most likely find a vendor selling bottled water. It's guaranteed that most of us barely concern ourselves with the safety of the water in the bottle before downing it.

There are challenges that face every industry and every aspect of our lives. In the food and beverages industries, these challenges are present. Some of these are the quality of the water, the quality of the materials used in packaging and storing the water, and the consumer safety.

To begin with is the exposure to chemicals used in making the plastic bottles. Recent research shows that plastics are made of substances that can contaminate the water, and if ingested over long periods of time, and in significant quantities, can and will adversely affect our health.

The common plastics in water include polyethene, polypropylene, polypropylene terephthalate (used in making bottle caps), and polyvinyl chloride (PVC), among others. These chemicals have the potential to cause harm to us, including cancers, infertility, and mental issues such as autism and ADHD, according to Sherri Mason.

The Environmental Protection Agency reports that there are two commonly occurring chemicals in bottled water; Perfluorooctane sulfonate (PFOS) and Perfluorooctanoic acid (PFOA) that pose significant health risks even in as small amounts. They have been termed 'forever chemicals' because they do not degrade easily and their durability is the reason they are used in manufacturing. Some of these chemicals can disrupt our

How Safe Is Your Bottled Water?

endocrine systems and interfere with the normal functioning of hormones. However, the scientific-based evidence on the effects of these plastics is inconclusive. It cannot be stated without a doubt that the chemicals themselves are solely responsible for the toxicity. Arie Francis, a medical doctor specializing in medial toxicology, says that the absence of concrete evidence does not imply that it is risk-free.

Secondly, the source, treating, handling and packaging of bottled water are processes that require very high standards of aseptic techniques. This means that these activities need to be carried out under germ-free conditions. The Centres for Disease Control (CDC) has warned that improper treatment, packaging, shipping, storage and poor consumer handling practices can lead to pathogenic contamination of the bottled water. Additionally, the CDC has reported that such contamination can pose neurological, gastrointestinal and reproductive health issues in consumers. The fault is not only in manufacturing but also in how consumers handle bottled water.

So far you must be reconsidering the decision to use bottled water. Before you completely swear off drinking bottled water, you must know that we are constantly exposed to chemicals and toxins from the environment. From the burning of a candle, to the clothing material and fumes from vehicles, we cannot avoid most of the chemicals. The amount of chemicals that find their way into our bodies is the most crucial aspect. An example is Bisphenol A (BPA) in our water bottles.

If you are a consumer of bottled water, there are some safety measures you can apply to ensure you minimize your exposure to certain risks. Ensure that you check the contents on the labels. The longer the bottle has been on the shelf, the higher the risk that more plastic has leaked from the bottle into the water. Check for leaks or improper sealing of bottled water. Store bottled water under low temperatures on consumption. Buy bottled water from trusted vendors. Take care not to introduce contaminants into the water when using or storing it. The CDC recommends looking out for treatment methods such as reverse osmosis, distillation and filtration with an absolute 1 micron filter from your water vendor. These are considered safe as they remove pathogens and most of the unwanted particles in water.

The Water Services Regulatory Board (WASREB) in Kenya recommends that drinking water meets the basic requirements of being pathogen-free, contain no chemicals that have adverse effects, should be clear with zero salinity, and without odour or offensive taste.

Professionals in the water sector also recommend that you do not re-use single use bottles, switch to re-usable water bottles, and use filters at home such as charcoal filters. Minimizing your exposure to harmful levels of substances will guarantee you enjoy a healthier life.

Round up of The Week's Events

Sensitization and Mapping of KEWI Qualifications Workshop for KEWI by Kenya National Qualification Authority

Long - Term Programmes

Diploma in Water Engineering Technology (DWET) Diploma in Wastewater
Diploma in Water, Sanitation Engineering Technology (DWSET)
Diploma in Water Resources Management Technology (DWRTM)
Diploma in Irrigation and Drainage Engineering Technology (DIDET)
Diploma in Information Communication Technology (DICT)-KNEC
Diploma in Water Laboratory Technology (DWLT)
Certificate in Wastewater and Sanitation Engineering Technology (CWSET)
Certificate in Water Resources Management Technology (CWRMT)
Certificate in Information Communication Technology (CICT)- KNEC
Certificate in Water Laboratory Technology (CWLT)
Certificate in Water Engineering Technology (CWET)
Drilling Operations and Management (DOM)
Plumbing and Pipe Fitting (PPF)
Water Operators Course (WOC) in:

- Water Supply
- Meter Reading
- Sewerage Operations

Short - Term Programmes

Use of Earth Observation Tools and GIS for Water Resources Management
Entrepreneurship and Financial Management for Water Managers
Operation and Maintenance of Water Supply Networks
Metering and Installation of Water Supply Networks
Leak Detection & Repair techniques
Drilling Operations and Management (DOM)
Operation & Maintenance of Pumping Stations
Pump Selection, Installation and Maintenance
Plumbing, Pipe Fitting and Solar Water Heating
Instrumentation for Water and Wastewater Systems
Water Governance, Management and Technology
Application of GIS for Water Utilities Mapping
Drilling Operations and Management
Water Quality Sampling and Testing
Microbiological Water Quality Assessment
Integrated Water Resources Management
Non-Revenue water
Water Management
Customer Care

Vision

A Technical Centre of Excellence in Training, Research, Innovation and Consultancy in the water, Sanitation and Irrigation Sector.

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T o offer Competency-Based Training, Research, Innovation, Consultancy and Outreach Services in the Water, Sanitation and Irrigation Sector for sustainable development.

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Good Corporate Governance
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Innovativeness
Inclusivity
Patriotism
Integrity

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OTHER SERVICES OFFERED

Water Quality Laboratory Services
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Repair of pumps boreholes and distribution systems

Your feedback is crucial for our improvement

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