

October 19 – October 25 2024

## KEWI Reaps Big During its Rainwater Harvesting Academic Exchange Tour of China



A group photo of Kenya and China delegation during the Rainwater Harvesting and Conservation Academic Exchange Tour in China. Kenya's delegation included KEWI Board Chair, Hon. Patrick Musili Mbangula (4th from right, front row), CEO Dr. Leiro Letangule EBS (6th, from left, front row) and Deputy Director, Research, Consultancy and Technical Services Mr. Nelson Kwamini (2nd, from left, front row)

BY: PIUS KIMANI

**K**enya Water Institute (KEWI) is set to benefit with equipment and infrastructural support from Gansu Academy for Water Conservation (GAWC) once a funding proposal that has been developed is approved. This comes at a time when KEWI is actively seeking working partnerships with international organizations to help equip its water laboratories and workshops with the latest and

cutting-edge equipment that will help it deliver its mandate as a leading Training and Research center in Kenya and the region.

Currently in China participating in an academic exchange project for GAWC, KEWI Board Chairperson Hon. Patrick Musili Mbangula, Chief Executive Office Dr. Leiro Letangule EBS and Deputy Director, Research, Consultancy and Technical Services, Mr. Nelson Kwamini have

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spearheaded talks on the scientific research academy that will see the two institutions also develop joint proposals for technical development and also enhance their academic exchange programs on rainwater harvesting as mean to leverage the strengths borne by each organization on

matters. This is with an aim to enhance KEWI capacities as a leading regional role player on extension and technique development on rainwater harvesting and utilization.

The academic tour which also includes a delegation from Busia County further saw KEWI kickstart collaboration talks with China Agricultural University (CAU) and DAYU Irrigation, the largest irrigation and dam construction company in China. At CAU, KEWI engaged in talks on potential areas of collaboration. To strengthen this, CAU will see a team of 20 professionals and experts visit KEWI for a familiarization visits and further discussions.

If successful, the collaboration will see CAU fulfil its commitment of



*A session during the Technical Exchange seminar on Rainwater Harvesting And Utilization at Gansu Academy for Water Conservation in China*

offering support in areas of joint research. During the visit to China, KEWI team has visited the university's water analysis laboratories and water treatment plants where they saw first hand some of the latest technologies. While visiting DAYU, an enterprise keen in solving and serving the problems of agriculture, rural areas and water resources, KEWI held talks with the company's Vice Chairman Yang Chong and discussed on rich areas of collaboration.

With KEWI being a key stakeholder in advancing the government's water, sanitation and irrigation agenda and especially in reducing the levels of Non-Revenue Water (NRW) in the country, the institute got a

major boost in its quest to address the menace. This is after DAYU committed to supply equipment e.g. smart meters that will help the institute in its research endeavors. DAYU is a leading manufacturer of smart meters and other smart equipment in China.

The organization further committed

to work jointly with KEWI to support the government agenda of constructing more than 100 dams. Towards this, Dr. Letangule and Hon. Mbangula promised to book an appointment with the Cabinet Secretary Eng. Eric Murithi Muuga to enhance the conversation. The two organizations also agreed to develop a working Memorandum of Understanding (MoU) to help formalize their talks. The academic exchange program which seeks to promote the technical cooperation between China and Kenya has seen the participants hold a flurry of activities and engagements as mean to tap on Chinas experience and expertise on rainwater harvesting and integrated water management.

## Crowning Moment for City Water Utility Staff: Big Win for Operation and Maintenance of Water Supply Networks



*A group photo of the 5th cohort of Nairobi City Water & Sewerage Company (NCW&SC) staff after successful*

BY: OTIENO FREDRICK

It was a crowning moment for some 150 staff of Nairobi City Water & Sewerage Company (NCW&SC) after successful completion of 5 weeks training (in 5 cohorts) on Operations and Maintenance of Water Supply Networks at Kisumu Campus. From the outset, the rationale for O&M was set, and the venue provided a perfect setting for training, executed by accomplished facilitators through skillful balance of onstage presence and offstage engagement that exposed participants to outdoor practical sessions.

In many ways, it was a resounding endorsement of

O&M, particularly the line personnel in water utilities, and an acknowledgement of their role in the performance of complex tasks that include round the clock monitoring of physical assets. Fundamentally, the training placed the participants at the heart of O&M and conjured a heightened sense of urgency for adoption of latest skills and practices in O&M. The interface of training with practice was palpable, and sustained through a training regimen that extended to our partners, the Kisumu Water & Sanitation Company (KIWASCO).

Critical elements of O&M were emphasized, among

them the adoption of proactive actions to prevent progressive collapse of infrastructure through preventive maintenance. Avoidance of costly repairs was underlined as rationale for sustaining uninterrupted operation of pumps, valves, and meters. Thus, refining of the operational strategy was identified as critical for sustained coordination of maintenance schedules to extend longevity of various components and to keep them in optimal state.

The subject matter was explored through the lens of operations and asset management practices that elevate O&M above routine

## Crowning Moment for City Water Utility Staff: Big Win for Operation and Maintenance of Water Supply Networks



*A training session for Nairobi City Water & Sewerage Company (NCW&SC) staff at Kisumu Campus*

tweaks to mechanical components or checking off items in O&M manuals.

Consequently, O&M was redefined as an intricate blend of routine maintenance practices with technical Benchmarks mediated with strict adherence to record keeping and fidelity to globally acceptable standards. The preceding imperatives are also essential antecedents of efficiently managed infrastructure and a forward-leaning business strategy.

The significance of operation and maintenance manuals was emphasized as an integral

guide for O&M staff and outlined as preventive maintenance activities and practices that mainstream quality standards.

A b s e n c e of a comprehensive O&M manual, it was noted, could expose staff to preventable accidents while fomenting chaos in water utilities, below par performance of utilities and uncoordinated processes across departments. Consequently, the necessity of simple, precise, and accessible O&M manuals for users to ensure that all operations are harmonized towards effective

and methodical operations were emphasized.

The training produced a rich repository of O&M plans developed during the course of the 5-week training from staff across supply and distribution departments, as well as water and sewerage operators and human resources departments. It is anticipated that integration of the plans will provide a firm basis for improvement of e m e r g e n c y

processes for operation and maintenance of vital machinery with defined measures for disaster response and synchronized action to remedy adverse situations also considered. In this regard, routine maintenance procedures, emergency procedures, comprehensive delimitation of O&M procedures, and standard operating protocols should be instituted.

The training was graced by Campus Principal Dr Emily Chepkoech who urged participants to ensure that O&M plans are integrated in all aspects of company operations.

## Kitui Campus Hosts Young Learners; Plants Seeds for Future Water Technicians



*Kitui Campus, Head of Academic Affairs, Ms. Margaret Kasuki, (Standing, in red) and Mr. Simon Peter Wambua (Infront, Standing) orienting St. Paul's Secondary School students before taking them for a tour around the campus.*

**BY: SIMON PETER WAMBUA**

The visit to Kenya Water Institute Kitui campus by the students of St. Paul's Secondary School has not only provided the candidates with a unique opportunity to learn outside the classroom and from the leading water training facility in the region but has also activated a legion of water enthusiasts keen on driving the water, sanitation and irrigation agenda in the region and the country at large.

The experiences proved crucial in shaping the next generation of professionals,

and with Kenya's growing need for skilled workers in the water and environmental sectors, the students' exposure to KEWI's programs is likely to have a lasting impact.

Coming at a time when such valuable exposure is touted as one of strong way of inculcating a culture of interest amongst the young and learning population, the hands-on experience and insight gained during the tour opened the eyes of the would-be engineers on what it entails to study in a key institution that plays a significant role in Kenya's water sector.

The visit was designed to provide the students with

practical knowledge that complements their academic studies. KEWI, renowned for its training in water management, engineering, and environmental sustainability, is a pivotal institution in training professionals in water and sanitation sectors across Kenya. By visiting the campus, the students were able to see firsthand the facilities (water laboratory, library, workshops, computer laboratory, and playing fields), interact with water experts, and gain an understanding of the importance of water

resource management in Kenya's development.

During the tour, the students were taken on a guided tour of the facilities, including the laboratories, classrooms, and demonstration areas where various water treatment technologies and sustainable water management practices are taught.

The students learned about the processes involved in water purification and treatment, water quality testing, and water distribution systems. The students asked insightful questions, demonstrating their curiosity and eagerness to understand how theoretical

## Kitui Campus Hosts Young Learners; Plants Seeds for Future Water Technicians



*An instructor at Kitui Campus takes St. Paul's Secondary School students through a session on what is entailed in a Pipes workshop.*

were introduced to the various diploma and certificate courses offered at KEWI. The staff highlighted the importance of these careers, particularly in a country like Kenya where water scarcity and environmental challenges are prevalent.

With water being one of the most critical resources globally, and Kenya facing challenges in ensuring access to clean water, particularly in rural areas, the students carried with them the knowledge and inspiration, and some may even return to KEWI as future students ready to address Kenya's water challenges.

And as they prepare to transition to higher education and eventually into various career paths, understanding the role of institutions like KEWI will

knowledge applies in real-world scenarios. KEWI Lecturers explained how students in the institute's programs work on projects that tackle real-world water challenges, particularly in arid

and semi-arid regions such as Kitui.

One of the highlights of the visit was a presentation by KEWI's academic staff on career opportunities in the water sector. The students

undoubtedly inspire many of them to consider pursuing courses and careers in fields related to water resource management, environmental conservation, and sustainable development.

## Building Expertise in Pipework Skills for Water Supply and Sewer Systems

BY: BRITNEY MOKEIRA

This week, the Kenya Water Institute held an intensive short course on pipework skills for water supply and sewer systems for the technicians from the Mombasa Water and Sewerage Company. The course, designed to up skill participants in the specialized fields of water distribution and sewer networks, provided a



*Mombasa Water and Sewerage Company (MOWASCO) staff pose for a group photo after completion of their professional development training program on pipework skills for water supply and sewer systems*

comprehensive understanding of essential pipework skills. Over several days, participants were exposed to a well-rounded curriculum that spanned the design, installation, maintenance, and repair of water and sewer pipelines, crucial for maintaining effective urban infrastructure.

The course began with an overview of water distribution systems and sewer networks, setting the foundation for the practical skills required in pipework. Participants learned about various pipe materials—such as PVC, HDPE, ductile iron, steel, and concrete and explored how each material's characteristics suit different applications within water and sewer systems. Further, they were introduced to the basic design principles of pipework,

including how to assess appropriate pipe types for water supply versus sewer systems, and how to use pipe fittings, joints, and valves to create secure and efficient networks.

Key to the training was the focus on installation techniques, covering everything from trenching, pipe bedding, and backfilling, to specific procedures for laying pipes for both water supply and sewer systems. Participants gained hands-on experience with essential tools and equipment and practiced methods of joining pipes using various techniques. The course also highlighted the importance of leak testing, water pressure testing, and flow capacity assessments to ensure that installations meet performance standards.

A crucial aspect of the curriculum was understanding the distinction between gravity and pressurized sewer systems. Attendees received in-depth guidelines on laying sewer pipes with correct slope, alignment, and elevation, and learned about critical differences in materials and techniques between sewer and water supply pipelines. Practical lessons also covered installing sewer pipe connections, manholes, and inspection chambers, with a focus on proper joint sealing to prevent infiltration or exfiltration, reducing potential environmental risks.

In addition to installation, the course emphasized pipeline maintenance and repair. Techniques for diagnosing common issues in buried

## Building Expertise in Pipework Skills for Water Supply and Sewer Systems



*Mombasa Water and Sewerage Company (MOWASCO) staff during a field study at Ruai waste water treatment plant. Here, they got a chance to see the various stages of waste water treatment and types of sewers used waste water*

maintenance and repair. Techniques for diagnosing common issues in buried pipelines—such as leaks, blockages, corrosion, and root intrusion—were introduced, with demonstrations on using CCTV for inspection and pressure tests.

Various repair materials, such as clamps, sleeves, and relining, were discussed, along with methods like clamp repair, pipe replacement, and patching. Participants were also educated on the importance of maintenance schedules, preventive measures, and the appropriate use of personal protective equipment (PPE).

To supplement classroom learning, participants visited the Ruai Waste Water Treatment Plant, where they saw firsthand the application of skills they had learned, including installation techniques, repair procedures, and safety protocols. This practical exposure solidified their understanding of the complexities involved in managing water and sewer systems in real-world conditions.

By the course's conclusion, participants gained valuable skills that will enhance their ability to maintain water supply and sewer systems effectively. The training

provided benefits for individual professional growth which will now be better equipped to manage water losses, prevent sewer overflows, and protect environmental standards.

As demand for clean water and efficient waste management continues to rise, the knowledge acquired in this course positions these technicians to play a critical role in improving urban water infrastructure across Kenya.



## KEWI Embarks on Transformative Pan-African Training to Revolutionize Water Management

BY: FAIZAH JEPKORIR

The Kenya Water Institute (KEWI), in partnership with the Japan International Cooperation Agency (JICA), is set to launch an ambitious initiative to transform sustainable water management across Africa. From November 17th to December 3rd, KEWI's Nairobi campus will host the Third Country Training Program (TCTP) on Non-Revenue Water (NRW) reduction. Bringing together 21 participants from nine African countries—including Nigeria, Malawi, and South Africa the program aims to equip them with critical skills to address water loss, one of the continent's most pressing obstacles to sustainable development and economic growth.

NRW, or Non-Revenue Water, represents water produced but not billed to customers due to leaks, theft, or insufficient infrastructure. Across African nations, NRW accounts for over 50% of total water production in some cases, resulting in financial losses, reduced water availability, and increased operational costs. Tackling NRW is essential to ensure a reliable water supply and equitable access to clean water, which underpins health, agriculture, and industry.



*Trainees being guided on pressure management during one of the field study sessions.*

This two-week intensive training marks the start of a five-year program designed to build NRW management capacity across Africa. Participants will benefit from classroom instruction alongside hands-on training sessions with Embu Water and Sewerage Company, a recognized leader in NRW management in Kenya. This immersive, real-world approach ensures that participants gain practical insights into effective NRW strategies, with Embu Water and Sewerage Company serving as a model of innovation and efficiency in water management.

By empowering African countries to independently address water management challenges, this program seeks to create a ripple effect across

the continent. Participants will gain knowledge in NRW reduction, regulatory frameworks, and sustainable practices, equipping them to drive meaningful change within their respective countries.

KEWI's leadership in water sustainability is evident in its training programs for over 50 water utilities across Kenya, alongside initiatives like the NRW Centre of Excellence and Mobile Workshop. These efforts, including a mobile workshop that delivers NRW training directly to water utilities, set new standards for practical, scalable water conservation solutions. Through these programs, KEWI reinforces its role as a global advocate for water sustainability, making high-quality training accessible to water professionals.

With this transformative initiative, KEWI reaffirms its commitment to expanding clean water access across Africa. Aligned with KEWI's vision to foster sustainable water practices, this program directly addresses water scarcity as a barrier to development. By spearheading this effort, KEWI continues to cement its reputation as a pioneering institution in water conservation, with an impact that extends across Africa and beyond.

# Upcoming Professional Development Program.



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**COST**

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## Photo of the Week



*Grace Mureithi, a 1st year Certificate in Water Engineering Technology student at Chiakariga Campus poses for a photo after a field study trip at Meru Water and Sewerage Company.*

### Quote of the Week

*“Everything you have ever wanted is on the other side of fear”*

*George Addair.*

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# Round Up of the Weekly Events



Moments during the Academic and Technical Exchange tour in China. KEWI is part of the delegation representing Kenya in the exchange project for Gansu Academy for Water Conservation.

# Round Up of the Weekly Events

*Water Engineering students from Chiakariga Campus during a field study trip at Masinga Dam in Machakos County. During the trip, they were able to gain immense knowledge in water supply infrastructure and hydraulics.*

**Photos courtesy of Joan Ruth Letangule.**



### Long - Term Programmes

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 Diploma in Information Communication Technology (DICT)-KNEC  
 Diploma in Water Laboratory Technology (DWLT)  
 Certificate in Wastewater and Sanitation Engineering Technology (CWSET)  
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 Certificate in Water Laboratory Technology (CWLTL)  
 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  
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## Vision

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## Mission

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

## Core Values

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