



WEIS BEACON

Your Quarterly Byte of the Water and Environment Information System

Volume 1, Issue 2, April - June 2025.

A. Message from the Editorial Team

Welcome to the second issue of the Beacon, your quarterly update about the Water and Environment Information System (WEIS). The Beacon serves to create awareness and visibility of the WEIS and thus strengthens adoption and the operationalisation of the system among its end users. This second issue picks from the lessons learned, incorporates recommendations from your feedback following the release of the first Beacon.

In this issue, we highlight key features of the WEIS, provide updates from our database managers, share operationalisation strategies from the Ministry of Water and Environment (MWE), address frequently asked questions, showcase recent system improvements, usage trends, and more.

Our appreciation goes to MWE's senior management team, technical helpdesk personnel, database managers, end users (internal and external), and all the development partners for their continued support, advice and proposals towards the operationalisation process of the WEIS as a one stop interface for water and environment data and information to enhance integrated data driven decision making.

Looking forward to your feedback, nice reading.

B. Overview of the WEIS

The WEIS is a web-based system being operationalised by MWE to effectively manage water and environment data and information for its stakeholders, which seemingly appears as a single file. The WEIS, therefore, is a collection of numerous thematic independent databases integrated and sharing common data through the exchange of messages. The access to each thematic database module is determined by role-based rights and privileges assigned to the end users.

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The different thematic databases modules are; borehole Information portal, Permits Management Portal, Surface water database, Ground water database, Water Quality Management Database, Dam and Waterways Safety Database, Forestry Sector Support Database, National Wetlands Information System, Rural Water and Sanitation Database, Water for Production database, Sanitation Management Information System, Environment Management Information System, Water and Sanitation Management Information System, Data Dissemination Services, Assets Information Management Database, Spatial Data Services and the Document Management System. Apart from the Data Dissemination Services, Assets Information Management Database, Spatial Data Services and the Document Management System, all other modules belong to specific departments and are operated to fulfil their respective mandates.

All modules contain public data and information that is accessible online through the WEIS homepage; however, to view detailed content, users must log in. You can access the WEIS by visiting <https://weis.mwe.go.ug> in your preferred browser on any internet-enabled device.



Vision of the WEIS

The vision of the WEIS is to provide a centralized, secure and structured online interface to access the water and environment data and information for both internal and external stakeholders of MWE and to enhance integrated, data-driven decision-making.

C. Message from the WEIS Database Managers

Each WEIS module is assigned and managed by a specific database manager. The role of the database manager is to ensure that the department's data is secure by reviewing and approving end user access rights and privileges; accurate through editing and correcting records; accessible through the approvals of data and information disseminated to all the stakeholders; and efficiently managed to support reliable operations and informed decision-making. This section, therefore, contains highlights from some of the database managers explaining the salient features, goals, utilisation and experience of their WEIS modules.

C1. Forestry Sector Support Database module

I've seen how WEIS effectively supports the end users namely; District Forest Officers (DFOs), Private Sector, farmers, NGOs, MDAs, Timber Traders, Nursery Operators, FSSD Technical Teams (MWE staff) in creating, using, and updating accounts with ease.

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forest movement permits were issued through the Forestry Sector Support Department module in Q4 FY 2024/2025.

The platform's automated information system user-friendly design simplifies account management, reducing errors and ensuring data accuracy. It has improved user experience and efficiency, promoting greater system adoption and usage while enabling smoother account operations across the department. The core functionalities are as follows;

Core Functionalities:

- **User Registration and Authentication:** The system enables stakeholders including the private sector, NGOs, DFOs, farmers, and suppliers to register and access relevant services. The services available to the external stakeholders include access to the seedlings requisition form. On the other hand, the internal stakeholders (department staff) have access to a broader range of services, including seedlings requisition, seedlings distribution, tree nursery certification, farmer training, monitoring of tree seedlings by species, acreage, survival rate, disease and pest incidence, etc, issuance of harvesting licenses, declaration of forest produce, and issuance of movement permits for forest products.
- **Harvesting License Management:** Online application, review, and issuance of harvesting permits.
- **Movement Permits and Declarations:** Automated generation of movement permits based on declared forest produce, reducing duplication and errors.
- **Clonal Nursery and Audit Reporting:** Submission and generation of clonal nursery certificates and inspection reports.
- **Data Entry and Validation:** Supports structured entry of forest production and trade data from districts and forest officers.
- **Reporting and Analytics:** Generates summary reports, dashboards, and exports for internal use and public dissemination (subject to access levels).



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C. Message from the WEIS Database Managers

C2. Water Quality Management Database module

The management of the WEIS - Water Quality Management Database module has been a significant undertaking; its functionality has been successfully incorporated and operationalized at both headquarters and regional laboratories. The database empowers individual laboratories while facilitating systemic communication, data storage, retrieval, and analysis across the platform. It also enhances field monitoring by capturing real-time field data through an offline water quality application, thereby, minimizing the loss of critical field information essential for result interpretation.

Under the WEIS Water Quality database module, there is notable improvement in tracking department performance indicators at both macro and micro levels, fostering efficiency and optimized resource utilization. The platform also extends the services of the newly accredited National Water Quality Reference Laboratory (NWQRL) to clients through a dedicated client portal.

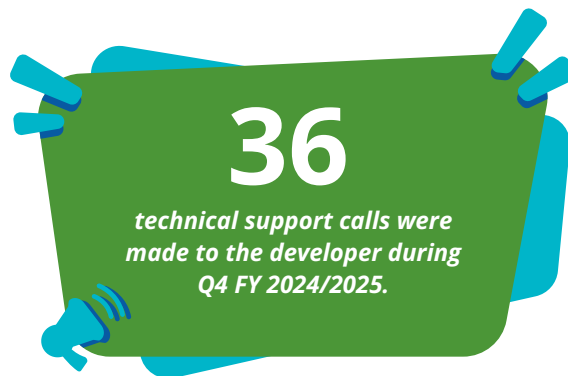
Ongoing training and support are being provided to facilitate a seamless transition and enable the full utilization of integrated water resources information. This will ultimately contribute to evidence-based scientific methods informing policy decisions and improving the lives of all water users, in accordance with the department and MWE's mandates.

Core Functionalities:

The module facilitates the coordination of essential communications and functions related to the inert activities of the Environmental Labs, Water Quality Information System and Quality control, standards and inspection within the department. Through the automation of micro-operations in these areas, there is an opportunity to enhance reporting on the department's fundamental roles and responsibilities via a feedback mechanism that identifies issues within the system and human resources. This encompasses tasks such as granting authorization for fieldwork and laboratory assessments, processing payments and accepting samples into laboratories, as well as providing updates on the completion of assigned tasks.

Users and Stakeholders:

- Water Quality Management department staff for internal operations
- MWE staff for interorganizational communication and operations
- External stakeholders through the provision of information vital for decision-making and interfacing with department products and services.



Key features of the Module:

- **Laboratory function:** This module facilitates connectivity among personnel in the department's hierarchy, as a result, it enhances the monitoring of various tasks and ensures accountability in the execution and distribution of responsibilities. Extending to regional laboratories, the system supports a three-tier framework that promotes effective communication regarding referral samples and coordination of field activities. This enhancement improves timely submission of both internal and external samples for analysis and the efficient sharing of certificates through a quality-controlled process aligned with the International Standards for Organisations 17025:2017 accreditation standards of the laboratory. The client portal serves as a bridge between clients and the NWQRL, facilitating smoother transactions and progress tracking of analyses.
- **Field activity offline tool:** For the real time collection of sample metadata in-situ addressing the gap that significantly hinders the interpretation of observed outcomes essential for monitoring and rapid response in drinking water, ambient conditions, and pollution/wastewater assessments.
- **Data visualisation dashboards:** This feature generates instant snapshots on the properties of the data from both internal and external activities through a quality-assured procedure, thereby enhancing the data based decision making via the system.



C. Message from the WEIS Database Managers

C3. Borehole Information Module

As the Database Manager for the Borehole Portal, I have had the privilege of overseeing the development and management of this critical module under the WEIS. Since its launch, in November 2023, we have achieved significant milestones in enhancing collection and management of data for boreholes across Uganda.

This is aimed at supporting informed decision-making MWE. The portal is web-based as opposed to the previous desktop-based database which required borehole drilling contractors to physically submit paper-based data for entry every quarter. With the new arrangement, drillers can submit borehole data at any time of the year and from anywhere. The portal also offers an offline data collection tool which enables data collection from remote areas without internet access. The database fosters uniformity in data collection, submission, and storage. A key lesson learned is the importance of stakeholder engagement in ensuring the portal effectively meets user needs. Currently, we're working on improving data visualization tools and expanding user training. Going forward, our aspiration is to further leverage the portal for advanced analysis of borehole data to generate information products to guide sustainable groundwater development and management in Uganda.

Core Functionalities of the Module:

The Ugandan Borehole Portal is designed to collect, store, manage and conduct basic analysis on borehole data. Its main functionalities are:

- **Data Capture and Entry:** Efficient entry of borehole data, including geological, hydrological, and construction information.
- **Data Retrieval and Reporting:** Generation of reports and summaries based on borehole data for planning, monitoring, and evaluation.
- **Data Analysis and Interpretation:** basic analysis of borehole data to provide graphical visualisation for informed decision-making.
- **Data Sharing and Collaboration:** Secure sharing of borehole data among stakeholders, including government agencies, development partners, and researchers.



Key Features of the Module:

The Ugandan Borehole Portal includes unique tools and functionalities that improve:

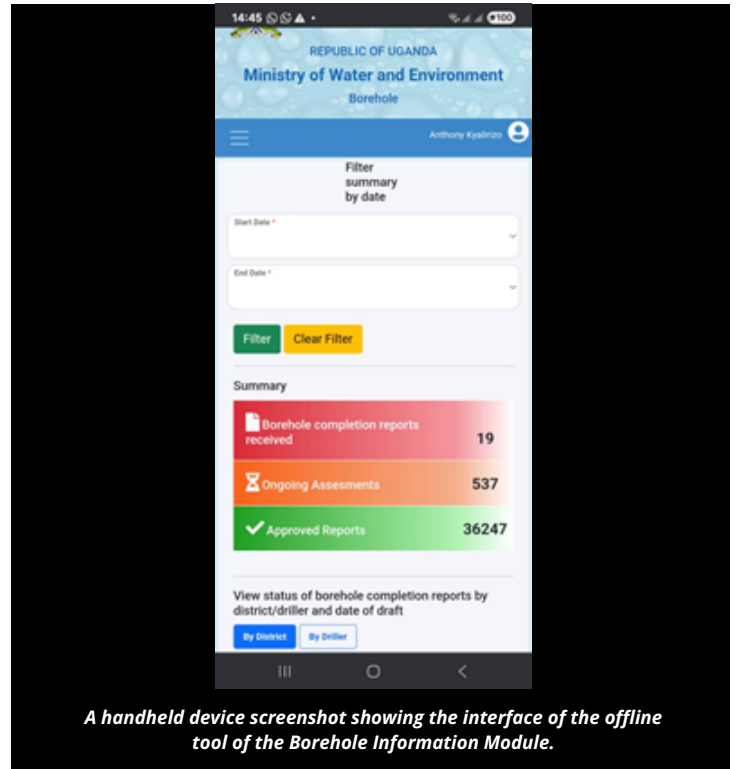
- **Data Structure and Organization:** The database is logically organised in data fields for borehole location, ownership, purpose, site selection, construction details, yield, and water quality.
- **User-Friendly Interface:** The portal features an intuitive interface for easy data entry, retrieval, and analysis by users.
- **Data Validation and Integrity Checks:** Mechanisms to ensure data accuracy, consistency, and integrity.
- **Search and Filter Capabilities:** The database offers easy and flexible search and filter options to find specific boreholes based on various criteria including borehole identification numbers, location details, among others.
- **Security and Access Control:** Secure access controls to protect data integrity and ensure appropriate access levels.
- **Data Visualization:** The database features interactive maps, charts, and graphs to visualize borehole distribution and performance. The next phase of development looks forward to introducing Data Analytics: i.e. tools for analysing borehole data to support decision-making and planning.
- **Interoperability:** The portal has the ability to integrate with other relevant databases such as the permit database and water quality management database, for water resource management.

C. Message from the WEIS Database Managers

Users and Stakeholders:

Primary user groups and stakeholders interacting with the module include:

- Ministry of Water and Environment's (MWE's) Department of Monitoring and Assessment (M&A's) Staff: This is basically for data quality assurance, archival, analysis and decision-making.
- Drilling permit holders/contractors: carry out borehole drilling operations and hence primarily responsible for data collection and submission through drilling permits issued by the Ministry of Water and Environment (MWE).
- Hydrogeologists: Registered hydrogeologists attached to each drilling permit holder/contractor oversee drilling operations to ensure quality data collection and submission to MWE through the portal. Hydrogeologists also carry out borehole site investigations prior to borehole drilling.

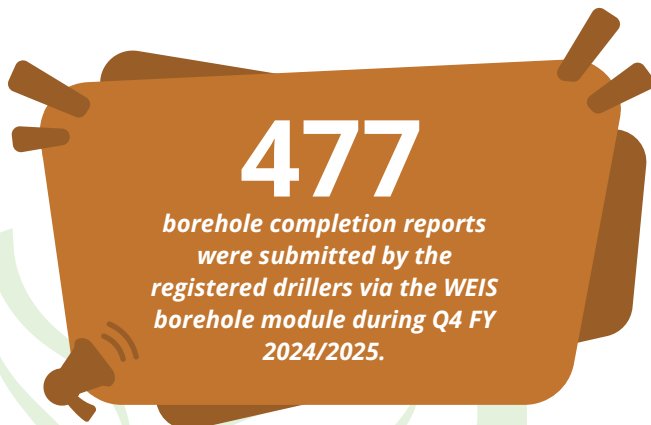


C4. Dam and Waterways Safety Database module

A New Era in Dam Safety: Embracing the WEIS Database for Smarter Decision-Making

As Uganda continues to scale up investments in water infrastructure to support economic growth, agriculture, energy, and environmental protection, the need for effective monitoring and oversight of dams and waterways has become increasingly critical. In response, MWE under the WEIS initiative, has developed the Dam and Waterways Safety Database - a dedicated online platform that is transforming dam safety management across the country.

This centralized platform provides a comprehensive inventory of dams, with up-to-date data on ownership, use, location, structural condition, water levels, and safety protocols. By consolidating this information, the system enhances decision-making, supports risk mitigation, and ensures that Uganda's water infrastructure continues to serve communities and ecosystems safely and sustainably. It has become an indispensable tool for regulatory oversight, planning, and emergency preparedness.



- Water Resources Planning and Regulation department: regulates borehole drilling contractors through issuance of Drilling Permits and enforcing compliance to permit conditions.
- Rural Water Supply and Sanitation Department: Provides conditional grants to district local governments for borehole drilling and rehabilitation.
- District Water Offices/District Local Governments: Plan and implement borehole drilling operations through local government conditional grants (LGCGs); they award contracts for borehole drilling.
- Development Partners: Interested in borehole data for planning and project implementation of water supply based on groundwater systems.



C. Message from the WEIS Database Managers

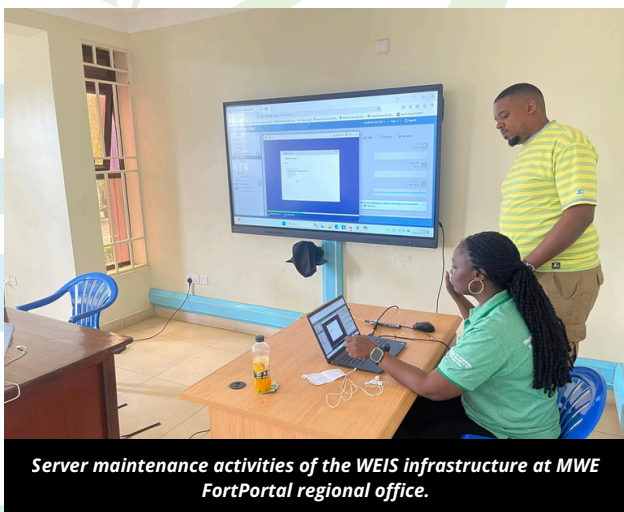
Key benefits of the system include: efficient tracking of dam inspections and safety assessments, early identification of at-risk structures through real-time technical data, improved coordination between MWE departments and dam operators, informed planning for maintenance, emergency response, and investment.

The platform is a role-based access and control environment for MWE staff as well as dam owners and operators, creating a shared space for collaboration, transparency, and accountability.

Therefore, I encourage all users - both within MWE and among dam owners and operators - to embrace and actively use the Dam and Waterways Safety Database. Regular, timely data entry and updates are essential for safeguarding lives, property, and the environment. By working together and fully leveraging this system, we can build a more resilient, well-regulated, and responsive water resources sector for Uganda.

The core functionalities of the system are; Dam Inventory management processes, Dam inspections management processes, Dam instrumentation management processes, Dam safety plans and reports submission, review, and approval.

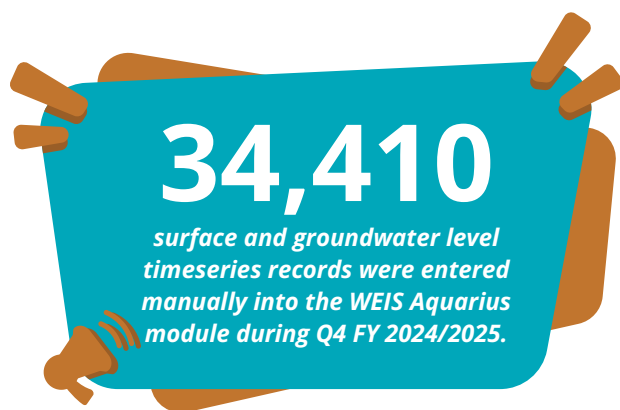
Let us all take ownership and make full use of this powerful tool for sustainable infrastructure and improved service delivery.



Server maintenance activities of the WEIS infrastructure at MWE FortPortal regional office.

C5. Surface water and groundwater timeseries

The WEIS integrates the Aquarius Time-Series, a comprehensive storage, manipulation and analysis database optimised for use with a range of hydrometric processes. The AQUARIUS Time-Series database enables you to adjust, correct and control hydrometric data, build better rating curves, derive statistics and even report in real-time. Its simple design delivers the latest hydrological science and techniques in an intuitive interface. It allows the department to correct and quality control time series data, build better rating curves and derive and publish hydrological data in real time to meet stakeholder expectations. The other benefits from Aquarius include:



Other benefits from Aquarius:

- **Combine data from a range of sources:** allows you to combine environmental data from a range of sources quickly and easily. Integration, import, and entry are simple and quick, so you can manage a variety of data from a range of sources on one platform.
- **Deliver high-quality data:** incorporates features for real-time data checking, error detection and cleaning, as well as functionality to allow for automatic bias corrections and rating shift management. Automated procedures remove the need for manual data workup, and alerts can be configured to warn users of unusual events or issues.
- **Publish and report in real time:** provides template reports to enable you to publish data immediately, with reports that can be run manually or on a schedule, ensuring that stakeholders and decision makers receive the right information, in the right format, at the right time.



C. Message from the WEIS Database Managers

C6. Document Management System

The Document Management System provides centralized storage, search, retrieval, and dissemination mechanisms for electronic reports, studies, plans, policies, modelling outputs, aggregated documents, knowledge products, and maps within the Ministry of Water and Environment.

The Document Management System is accessible and used by both MWE staff and the general public. The public can access documents that have been authorised and shared with everyone by MWE.

Within MWE, the staff can access documents that have been authorised and shared with all the departments. They can also access documents that have been shared specifically within their departments only. In addition, the Document Management System facilitates MWE staff to share documents directly with a customized group of colleagues.

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public documents were uploaded by various MWE departments through the Document Management System during Q4 FY 2024/2025..

How are documents accessed:

The public content is available on the WEIS homepage carousel, accessible by visiting <https://weis.mwe.go.ug>. To access the restricted private content, a user must log in with valid credentials. Only registered MWE staff can access the private content based on their role-based access control rights. The prerequisite to access this page is an active internet service connection.

Some of the documents available in the DMS include; project reports, studies, approved workplans, policies, modelling outputs, aggregated documents, knowledge products, and maps within the Ministry of Water and Environment.

C7. Permits Management Portal module

WEIS-Permits Management Portal (PMP) is a transparent source of verifiable data on water uses, services and the key players in the investigation, control, protection and management of water. It is an opportunity for: on-line submission of water permit applications and digital data; electronic document review and processing; receiving email alerts from submission to approval of the water permit application; auto generation of permit numbers; checking on compliance to permit conditions; generating a range of customised reports and; supporting evidence-based data analysis, decision-making and reporting in water governance.

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support calls were received by the WEIS helpdesk from the various end user categories during Q4 FY 2024/2025.

PMP's innovation lies in: real time water regulation data capture; encouraging more accurate reporting; providing online permit compliance data; providing a systematic way of recording evidence of compliance monitoring and; showing time taken to process a permit application.

Water users and the regulator, in the PMP module, have a centralized permit's data and information source of good quality.

To register and navigate the PMP module, refer to the user guides available via the links provided below:

- <https://weis.mwe.go.ug/userguide/pmpexternal.pdf> (click the link to apply for a water permit; check progress on a submitted application and; submit self-monitoring data).
- <https://weis.mwe.go.ug/userguide/pmpinternal.pdf> (click the link to process permits, analyse data and generate permit related information products).

D. Collaborations

The collaborations highlight the engagements by MWE's departments with various MDAs and development partners regarding the usage, adoption and improvements that can be done to their WEIS modules. These have driven technical enhancements, such as database customization and API integrations to meet specific stakeholder and end user needs for the continuous improvement of the functionality and features of the WEIS. These collaborations not only improve data verification and sharing but also facilitate the visibility, awareness, adoption and effective usage of the WEIS platform. The collaborations are;

D1. Enhancements of the FSSD database module for traceability of timber

MWE through the Forest Sector Support department (FSSD) conducted a two-day workshop between 27th - 28th May 2025 at the MWE headquarters. The meeting was attended by technical staff from MWE/FSSD, WEIS implementation team, Ministry of Trade, Industries and Cooperatives (MTIC), Uganda Timber Growers Association (UTGA), National Forestry Authority (NFA), Public Procurement and Disposal of Public Assets (PPDA) and the Food and Agriculture Organisation, Rome Office.

The Forest Governance, Value Chains and Climate Change Programme, put aside resources to support the country to establish the Uganda Timber Information and Monitoring for Better Enforcement and Regulation (U-TIMBER), an initiative to provide the necessary tools and digital infrastructure for timber traceability, from the forest to the market.

The purpose of this workshop was to;

- Discuss the feasibility of integrating the WEIS FSSD module into systems used by other MDAs.
- Identify necessary logical processes to ensure traceability of timber flow at specific segments of the value chain.
- Draft and validate the first version of the data exchange protocol for effective information sharing between the different components of the U-TIMBER system.

U-TIMBER will establish a robust framework of data sharing protocols and security policies, including standardized formats and collaboration strategies, to enhance data capture and governance within forest produce trade transactions. Conclusively, the U-TIMBER initiative will be integrated into the WEIS and seeks to digitize tracking and management of timber along the value chain, strengthen data capture and integrity, foster transparency in trade transactions, and improve compliance to regulations on timber and other forest produce.



A stakeholder engagement on the U-TIMBER process integration with the Forestry Sector Support Database at MWE headquarters.

Scan the Quick Reference (QR) Code to access the public documents on the Document Management System



Document Management System QR code.



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E. WEIS Operationalisation Strategies

The operationalization strategies of the WEIS focus on system adoption, usage and improve user skills by integrating the WEIS into their daily workflows and processes. These strategies involve training, system rollout, awareness campaigns, and user onboarding across all levels of MWE and its stakeholders in the public domain.

E1. Server configurations and installation at the MWE Regional office in Fort Portal

As part of MWE's efforts to ensure that the WEIS is fully functional, adopted and used across all regional offices, the IT team conducted the server setup, network configuration and deployment activity at the MWE Fort Portal Office in April 2025.

This focused on preparing MWE's onsite server infrastructure to run the WEIS modules reliably and securely. This included upgrading the server firmware, configuring the system for remote management and creating virtual machines to host the different WEIS applications. Each module was deployed on its own virtual machine with static internet protocol addresses, ensuring stability and smooth integration with the MWE's infrastructure. In addition, the office local area network connection was optimised for performance and speed.

To further strengthen the WEIS performance, the Internet Information Services configuration was accomplished and introduced endpoint protection, a modern security solution that provides real-time monitoring and automated threat response. The shift from legacy antivirus tools significantly improve MWE's cybersecurity posture.

By the end of the exercise, the Fort Portal office local network performance was improved. It was also equipped with a secure, operational WEIS environment, with remote support capabilities and scalable server infrastructure.

F. System Enhancements

To improve the operationalisation, adoption and make the WEIS easier to work with, several improvements have been implemented based on the end users' feedback. These changes target the visual and interactive elements of the user interface. The user experience is also addressed to ensure the system is usable, efficient, improving the outlook, simplifies processes, reduces delays, and makes the system more responsive to the targeted user needs. In this section, we outline the key areas where the system has been improved, focusing on better usability, clearer data flow, responsiveness and smoother integration. Additional minor process flows are also considered, provided they do not require changes to the overall internal structure of the existing flowchart.



F1. Forestry Sector Support Database

- The applicant's passport photo now appears on the harvesting license generated
- The corresponding fees for other types of permitted forest produce, such as charcoal and timber, can now be added in the harvesting licenses.
- The auto-fill option is now available on data entry forms for the declaration form and the movement permit
- The movement permit, harvesting license and tree nursery audit documents have embedded quick reference (QR) codes.





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F. System Enhancements

F2. Data Dissemination Services

- Database managers now have the ability to upload and distribute data within the system, minimizing dependence on external systems and enhancing overall workflow efficiency and productivity.
- The system now includes a two-way communication feature between the data requestor and database manager, improving collaboration, clarity, and the quality of feedback in the DDS module.
- A "Revert" button has been added so that the requestor can amend a data request that was submitted earlier, in case they receive feedback from the database manager.
- The database manager is now able to forward data requisitions to any officer within the same department for confirmation of data availability, as per the requestor's specified details.
- The system has been redesigned to enable users in Water Quality department to seek the commissioner's approval to dispatch the required data as a must, unlike other departments.

Scan the QR Code to access the WEIS Youtube Channel



WEIS YouTube QR Code.

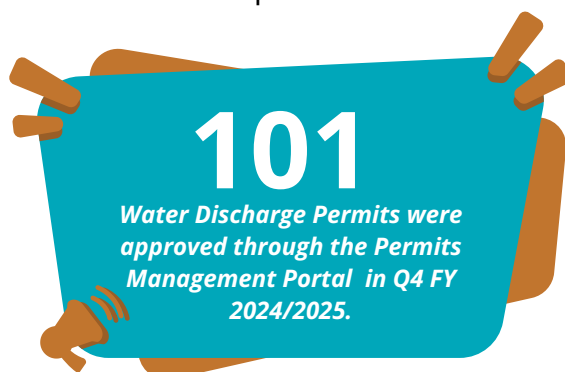
G. Frequently Asked Questions

1. What makes WEIS different from other MWE database platforms?

Answer: The key difference stems from the vision of the WEIS; it aims to provide a centralized, secure, and structured online interface to access the water and environmental databases for both internal and external stakeholders of MWE. Its ultimate goal is to improve data availability and accessibility to enhance integrated, data-driven decision-making by simplifying the role-based access to the Ministry's online database systems from a unified interface. While each of these systems works independently, they are integrated to improve data availability, sharing, harmonization, analysis and reporting.

2. Is the WEIS integrated into other government systems?

Answer: Beyond its core water and environment systems, the WEIS is already integrated with three key government agencies namely: the National Information Technology Authority, the Uganda Revenue Authority, and the Ministry of Local Government. Further integrations with other data sources are being considered and will be implemented on a needs basis.



3. What happens when I have forgotten my WEIS password?

Answer: You need to reset your password before you can access your profile. Visit the WEIS homepage (<https://weis.mwe.go.ug>) and click the login button located at the top right corner of the interface. The interface will provide the option to reset your password from where you can follow the prompts to complete. In addition, you visit https://www.youtube.com/@WEIS_MWE or scan the WEIS YouTube QR code to view the online video to reset the password on the WEIS YouTube page.



H. Testimonials from stakeholders

Behind every successful system adoption and great feature, there's a team whose daily work has been transformed and ready to share their story. This section is a collection of the feedback from the various end users who rely on the WEIS to accomplish their daily work. With the excerpts, the end users share their experiences, achievements and the impact of the WEIS in conducting their operations.

1. Forestry Sector Support Database

"...I've found the WEIS to be incredibly insightful and efficient. It has streamlined my workflow, saving me time and making data management much easier. I like the user-friendly interface and the helpful features that support my routine daily tasks. Overall, the WEIS has significantly improved my productivity, reporting and accuracy in managing information..."

District Forest Officer, Rukungiri

6,048

surface water level timeseries records were captured automatically from the telemetry station base server by the WEIS Timeseries module during Q4 FY 2024/2025.

2. Dam and Waterways Safety Database

"...the public has talked of some dams being at risk of collapsing especially during the rainy seasons, and that communities could get affected significantly; however, little information was available related to these dams' location and which areas would get affected. But now with a centralised inventory of dams in the Dams and Waterways Safety database, it is easy to access information on all dams in the country narrowed to the village level, including the monitoring cycle, rivers they are located, risk levels, impacts on downstream communities and users, and actions required to avert the risks..."

Senior Water Officer, MWE



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borehole completion reports were approved by MWE through the WEIS borehole module during Q4 FY 2024/2025.

Scan the QR Code to access the feedback form



WEIS Feedback QR code.