

MWA LEARNING EVENT: TOOLS, TRADE-OFFS, AND TAKEAWAYS: EXPLORING PRACTICAL APPLICATIONS OF AI FOR WATER SECURITY – RESOURCE GUIDE

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Audience: Event Participants

Designed to support those interested in learning more about artificial intelligence (AI) and finding ways to utilize these tools in their work, this document provides access to resources curated for event participants. The resource guide contains descriptions of the three case studies presented during the event along with contact information and resources to learn more about each program. Contact information and resources are also included for event speakers and organizers.

TOP HIGHLIGHTS

- Early access to new AI-supported tools and platforms
- Insights into utilizing AI for environmental monitoring and the benefits and limitations of AI
- Contact information to connect with peers working in the sector

THE WATER PROJECT: USING AI TO DEVELOP A MOBILE CHLORINE DOSING CALCULATOR – CASE STUDY, CONTACT INFORMATION, & RESOURCES

Any good mechanic will tell you it's about having the right tool for the job. Small, purpose-built tools have always been the ones field teams need. As organizations work to understand how AI will reshape their platforms and missions at scale, The Water Project finds that the more immediate value lies in building contained, fast, single-purpose tools that put real capability in staff hands while the organization learns the actual limits of these new technologies. The constraint-busting potential isn't theoretical. It's already producing field tools that didn't make economic sense to build.

The Water Project developed ShockCalc, a mobile chlorine dosing calculator for well disinfection, using AI-assisted "vibe coding" to go from concept to deployed field tool in four days at zero development cost. The approach sidesteps many common concerns about AI reliability by drawing a sharp line: AI writes the code, but the code itself is deterministic. ShockCalc doesn't ask a language model how much chlorine to add. It runs the same volume formulas, unit conversions, and concentration calculations a technician would perform by hand, producing identical outputs from identical inputs every time. The AI never touches a field decision at runtime. It was the builder, not the tool. A five-prompt sequential build process produced a functional progressive web app that works offline, requires no app store, and includes safety warnings for non-standard concentrations. Every formula was verified against hand calculations before field deployment.

ShockCalc shipped as a working PWA with step-by-step dosing workflows for borehole and dug wells, and three partner organizations are currently using it. Key lessons center on scope discipline: single-purpose tools are the sweet spot, small enough to review end-to-end, with no databases or APIs to introduce risk. Write a specification before engaging AI, validate all outputs independently, and reassess what is buildable quarterly as these tools improve rapidly. There is real value in process automation and bespoke field tools that never made sense to build before. ShockCalc will soon be released as open source and made available for any WASH organization to customize.

- **Contact Information:** Peter Chasse (peter@thewaterproject.org)
- **Resources:** Click [this link](#) to sign-up for beta access to the ShockCalc app.

THE AQUAYA INSTITUTE: PROJECT W DATA LIBRARY – CASE STUDY, CONTACT INFORMATION, & RESOURCES

Aquaya’s WASH data platform, [Project W](#), was developed to address a persistent challenge in the sector: while thousands of high-quality WASH datasets exist, they are fragmented across platforms and difficult to discover, compare, and use effectively. As a result, decision-makers often lack concrete evidence, funders struggle to identify where resources can have the greatest impact, and implementers are forced to rely on incomplete or outdated information. Project W aims to serve as a centralized, curated library where relevant WASH datasets can be easily found and accessed.

As the platform grew to include more than 4,700 datasets, Aquaya began integrating AI to improve both the user experience and the sustainability of maintaining the platform at scale. [**The AI integration is interactive and is still a work in progress. The following includes what we expect to be in place by the time of the webinar**] On the front end, AI now powers a natural-language search function that allows users to explore the full breadth of available data without needing to know exactly what they are looking for in advance. Rather than relying solely on rigid filters, users can ask questions in plain language, helping surface relevant datasets they might not otherwise discover. Behind the scenes, AI supports dataset classification, metadata extraction, identification of new datasets for human review, and routine checks such as flagging broken links - tasks that were proving costly to manage manually at this scale.

Importantly, Project W was designed with a human-in-the-loop approach. All new datasets are reviewed by Aquaya staff before being added to the platform to ensure data quality and relevance. Users can also override AI-assisted search with manual filters. AI functions as a “reference librarian” that understands the full collection, helps users refine and expand their searches, and continuously organizes and strengthens the library behind the scenes without replacing WASH expert’s judgment. Given funding constraints and recent shifts in the sector, incorporating AI made it possible to move toward a public Project W launch more quickly and at a scale that would not otherwise have been feasible.

Early experience suggests that AI-assisted search significantly improves users’ ability to find relevant data, while backend automation reduces staff time spent on routine maintenance. Key lessons for other organizations include the importance of having a clear problem definition before introducing AI, grounding AI systems in strong domain expertise, and using AI selectively as a tool to enhance what human teams can accomplish, rather than attempting to automate everything at once.

- **Contact Information:** Dayna Hansberger (dayna.hansberger@aquaya.org)
- **Resources:** Click [this link](#) to sign-up for early access to Project W.

WORLD RESOURCES INSTITUTE: AI-POWERED WATER RISK AND ECOLOGICAL MONITORING TOOLS – CASE STUDY, CONTACT INFORMATION, & RESOURCES

WRI is expanding its water risk and ecological monitoring tools to incorporate advanced AI capabilities. Decision-makers often lack consistent, credible, and decision-ready data to assess and plan for water risks. However, translating complex and often technical hydrological science into actionable data and decision-relevant signals remains difficult. [Aqueduct](#) is a widely used tool in the water security space that maps and analyzes current and future water risks using indicators such as water stress, depletion, flood risk, drought risk, and water quality. WRI experts are planning for the next generation of Aqueduct to explore AI-assisted capabilities that help users run

water risk assessments, support disclosure reporting, and answer questions about changing water risk scenarios. In parallel, WRI is exploring how to integrate foundational AI with Earth Observation monitoring to improve near-real-time detection of surface water anomalies worldwide, including both scarcity and excess (e.g., flooding). This work could inform future alerting approaches to notify end users when emerging anomalies threaten their communities, helping to identify the nature and potential impacts of water risks and inform timely, risk-mitigating actions.

As Aqueduct evolves, WRI is exploring how learnings from [Global Nature Watch](#) could help further democratize access to information and support decision-making. Global Nature Watch is an experimental, open, AI-powered system that combines peer-reviewed research from WRI's Land & Carbon Lab and Global Forest Watch in a simple, chat-style interface to explore forest and land cover changes worldwide. Users can ask questions in plain language and receive AI-assisted responses supported by maps, statistics, and context to build a fuller picture of the planet's changing landscapes. Integrating near-real-time and annual satellite data, it reveals change across ecosystems, from forests to wetlands, grasslands, croplands, and other landscapes, so that anyone working to protect and restore nature can monitor change across every parcel of land, anywhere on Earth, regardless of technical expertise.

As backdrops to our evolving work on AI, WRI recently co-published an [AI for Nature](#) working paper, which explores the critical role AI can play in overcoming current barriers to nature conservation, and has articulated a formal position on [responsible AI](#) outlining key principles and practices. These position papers are shaping how WRI approaches AI and integrates it into our research and programmatic work.

- **Contact Information:** Liz Saccoccia (elizabeth.saccoccia@wri.org), Tinebeb Yohannes (tinebeb.yohannes@wri.org), & Francesca Battistelli (francesca.battistelli@wri.org)
- **Resources:** To learn more about Aqueduct and WRI's work, please reference these links.
 - [Aqueduct Tools](#)
 - [Global Nature Watch](#)
 - [AI for Nature Paper](#)
 - [Responsible AI Guidance](#)

ADDITIONAL RESOURCES

To learn more about **Dr. Samuel Segun's** work, you can read his research on "[The Infrastructure Paradox of AI Development in LMICs](#)" and "[Mapping the Potentials and Limitations of Using Generative AI Technologies to Address Socio-Economic Challenges in LMICs](#)." To learn more about the **Millennium Water Alliance**, visit [our website](#) or follow us on LinkedIn [here](#) where we post upcoming events. For those interested in learning more about **Mobi-Water**, you may visit [their website](#) or follow CEO Kelvin Gacheru on LinkedIn [here](#).

ADDITIONAL CONTACT INFORMATION

- Keith Wright, Millennium Water Alliance (keith.wright@mwawater.org)
- Dr. Samuel T. Segun, The Global Center on AI Governance, Quelox Labs (samuel@globalcenter.ai)
- Olivier Mills, Baobab Tech (olivier@baobabtech.ai)
- Kelvin Gacheru, Mobi-Water (gacheru@mobiwater.co.ke)
- Nicolas Dickinson, WASHNote (dickinson@washnote.com)