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WORKSHOP REPORT

Training Workshop on the Small Reservoirs Dashboard: From Data to Decision

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November 2025

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Acknowledgements

This work was carried out under the CGIAR Sustainable Animal and Aquatic Foods Program. We would like to thank all funders who supported this research through their contributions to the CGIAR Trust Fund (www.cgiar.org/funders).

CGIAR Sustainable Animal and Aquatic Foods Program

The Sustainable Animal and Aquatic Foods (SAAF) Program is part of CGIAR's 2025-2030 Research Portfolio. SAAF works across Africa, Asia, and beyond to improve access to nutritious foods while reducing emissions and supporting inclusive livelihoods. By combining livestock and aquatic systems, it develops integrated, climate- and environment-friendly solutions tailored to local contexts. CGIAR research is supported by contributions to the CGIAR Trust Fund. CGIAR is a global research partnership for a food secure future dedicated to transforming food, land, and water systems in a climate crisis.

Citation

Akpoti, K.; Appiah, S.; Zwart, S. 2025. *Training workshop on the Small Reservoirs Dashboard: from data to decision.* Report of the Training Workshop on the Small Reservoirs Dashboard, Accra and Tamale, Ghana, 12 and 14 August 2025. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Sustainable Animal and Aquatic Foods Program. 15p.

Front cover photo: Workshop participants in front of the IWMI Office, Accra, Ghana. Photo: Klinsman Amissah, Consultant/IWMI

Back cover photo: Guilia Zane/IWMI

Background and objectives

Reservoirs are critical infrastructure in West Africa, yet their potential remains largely underutilized. Under the Aquatic Food Initiative, IWMI and its partners have piloted the use of small reservoirs for aquaculture, demonstrating promising results. However, the central question remains: can these pilots be scaled across the thousands of reservoirs in the region? Addressing this requires a comprehensive database that captures key aspects such as water availability, use patterns, quality, location, ownership, and the broader social context. To build this evidence base, multiple tools and approaches were employed, including time series analysis of satellite imagery to track water availability during the dry season, field surveys to collect detailed information on multi-use functions and infrastructure, expert consultations to define the preconditions for sustainable aquaculture, and geospatial modeling to guide suitability analysis and monitoring.

These efforts have culminated in the development of a Small Reservoirs Data Portal (http://apps.iwmi.org/SmallReservoirs), powered by Power BI, which visualizes data on more than 2,000 reservoirs. The portal enables stakeholders to query, analyze, and interpret spatial and field-based information, offering answers to critical questions: Where are small reservoirs located? Do they hold water year-round? And under what conditions can they support caged aquaculture? With the quantified spatial data, the goal is to support the scaling of caged aquaculture in northern Ghana, informing decision-making, monitoring, and evaluation while enhancing the sustainable use of small reservoirs for food and water security.

The workshop was designed to build capacity and promote effective use of the Small Reservoirs Data Portal. Specifically, the objectives were to:

- Equip participants with practical skills to navigate the Small Reservoirs Data Portal and interpret spatial and field-based data on water dynamics, multi-use functions, and aquaculture suitability.
- Strengthen the application of dashboard insights in field operations, extension services, and policy dialogues to guide decision-making and program implementation.
- Foster collaboration among stakeholders and gather feedback to refine and enhance the dashboard and underlying database.
- Raise awareness on the mapping of small reservoirs, their role in water availability and aquaculture development, and their potential for supporting rural livelihoods.
- Promote knowledge sharing and capacity building through presentations, live demonstrations, and interactive hands-on sessions.

Workshop Structure

We had two workshops, first in Accra, on Tuesday, 12th August 2025, and second in Tamale, on Thursday, 14th August 2025. The workshops began with an introduction outlining the objectives and rationale, after which participants engaged in a series of technical presentations. The first presentation focused on mapping small reservoirs using remote sensing, with emphasis on their locations, the impact of the One-Village-One-Dam initiative, and implications for dry season water availability. This was followed by a session assessing the suitability of small reservoirs for scaling caged aquaculture, drawing on GIS analysis and expert consultation. After a brief coffee break, the third presentation introduced the Small Reservoirs Data Portal, which allows users to query, analyze, and visualize data on more than 2,000 small reservoirs. A practical session provided participants with a live demonstration of the Data Portal, followed by hands-on exercises to strengthen their ability to use the dashboard effectively. The workshop concluded with a participant survey to capture feedback and reflections, after which lunch was served.

Participants

Both workshops brought together a diverse group of participants from various organizations focused on aquaculture, water management, and economic development in Ghana with particular focus on the Northern Regions. A total of 60 participants attended the two workshops in Accra (29) and Tamale (31). Tables 1 and 2 summarize the participants from various organizations involved in aquaculture and related fields, detailing their gender distribution and areas of expertise for the workshops in Accra and Tamale, respectively.

Table 1. Summary of Participants by Organization, Gender, and Expertise (Accra)

Organization	Expertise	Male	Female	Total
Raanan Fish Feed West Africa Ltd	Marketing and Sales Management	1	0	1
CSIR - Water Research Institute	Water Research, Aquaculture Research, Institute Leadership	2	1	3
Mofad / Dagan Farms Ltd	Aquaculture Consulting	1	0	1
Development Action Association	Community Development, Oyster Harvesting, Program Management, Finance	1	5	6
Ghana National Aquaculture Association	Aquaculture Advocacy, Association Leadership, Administrative Support	1	1	2
Fisheries Commission	Aquaculture Regulation, Inland Fisheries Management	1	1	2
Chamber of Aquaculture	Aquaculture Operations, Conference Coordination, Administration	2	1	3
University of Ghana	Academic Research and Education in Aquaculture	1	0	1
Ghana Irrigation Development Authority	Irrigation Development, Infrastructure Management	2	0	2
Ministry of Fisheries and Aquaculture	Fisheries and Aquaculture Policy Planning	1	0	1
IWMI	Water Management Research, Geospatial Hydrology, Social Science	6	1	6
Total		**19**	**10**	**29**

Table 2. Summary of Participants by Organization, Gender, and Expertise (Tamale)

Organization	Expertise	Male	Female	Total
CEAL	Aquaculture and Fish Farming	1	2	3
IWMI	Water Management Research	3	1	3
Ghana Irrigation Development Authority	Irrigation Scheme Management	3	0	3
CKT-UTAS	Academic Research (Aquaculture/Water Management)	1	0	1
Water Resources Commission	Water Resource and Basin Management	2	1	3
CSIR-Water Research Institute	Water and Aquaculture Research	2	1	3
Fisheries Commission	Fisheries Management, Finance, and Administration	4	1	5
Northern Development Authority	Economic Development and Analysis	2	0	2

University for Development Studies	Academic Research and Education (Aquaculture/ Water Management)	2	0	2
Tamale Technical University	Academic Research and Education (Water Resource Engineering)	1	0	1
EPA	Extension officer	1	0	1
Anibirds farm	Aquaculture and Fish Farming	1	0	1
Hydrotec	Aquaculture and Fish Farming	1	0	1
Northern Empowerment Association	Aquaculture and Fish Farming	1	0	1
Total		**25**	**6**	**31**

Key discussions and outcomes

This section summarizes the substantive discussions and outcomes of the workshop. It first synthesizes the major messages from the presentations and live walkthroughs, then captures stakeholder inputs, including practical challenges observed and proposed solutions, and concludes with the consensus positions and concrete action points agreed upon for follow-up.

The workshop opened with remarks situating the activity within CGIAR's broader Aquatic Food Initiative and recent efforts to pilot aquaculture in small reservoirs in northern Ghana. It was noted that while these pilots have shown promise, the central question remains whether such models can be scaled across the hundreds of small reservoirs constructed in recent years, including under the *One Village, One Dam (1V1D)* initiative. Participants were reminded that many of these reservoirs are underperforming or poorly maintained, and that identifying which are viable for aquaculture and why others fail requires reliable, evidence-based monitoring.

The first set of presentations introduced the rational and technical approach for building a Small Reservoirs Database and Dashboard. Dr. Komlavi explained how time-series satellite imagery is used to map reservoirs, track changes in surface area during the dry season (November–April) and validate results against manual digitization and field surveys. He also described how field surveys complemented the remote sensing work by gathering information on multiple uses, ownership, water quality, irrigation infrastructure, and existing aquaculture practices across more than 900 reservoirs. Expert consultations were then used to define the criteria for aquaculture suitability, ensuring that local knowledge and practical experience informed the model. These inputs were combined into a geospatial suitability framework, integrating social, economic, biophysical, and water quality factors to determine which reservoirs are most suitable for scaling caged aquaculture.

The last two (2) sessions introduced and demonstrated the Small Reservoirs Data Portal, a digital platform designed to query, analyze, and visualize data on over 2,000 small reservoirs in northern Ghana. Dr. Sander Zwart introduced the portal as an open-access platform developed to consolidate and visualize data on over 2,000 reservoirs across northern Ghana. He highlighted its four main modules: (i) *Monitoring water status*, which tracks seasonal changes and year-round availability; (ii) *Visualizing reservoir dynamics* through maps and charts of surface area fluctuations; (iii) *Characterization*, which draws on survey data from more than 900 reservoirs covering uses, ownership, infrastructure, and aquaculture practices; and (iv) *Aquaculture feasibility*, which integrates social, economic, and biophysical indicators into a multi-criteria suitability assessment.

Dr. Komlavi Akpoti then led a step-by-step walkthrough of the portal, guiding participants through exercises that built from simple regional and district-level queries to more advanced filtering and suitability analyses. Participants explored how to zoom into individual reservoirs, interpret seasonal performance graphs, and apply aquaculture feasibility filters such as year-round water availability, accessibility, and market proximity. Case studies, including Langbensi reservoir (which consistently retained water year-round) and Bilmi Mogri (which showed abnormal drying in 2023–2024), illustrated how the portal can highlight contrasting reservoir performance and support monitoring, evaluation, and planning.

The live exercises provided an opportunity for hands-on engagement, where participants applied the portal's tools to real scenarios. This interactive approach not only demonstrated the dashboard's potential for decision support

but also encouraged participants to identify gaps, propose improvements, and reflect on how the tool could be used within their organizations and policy processes.

During the presentations and the interactive sessions, participants raised several observations, challenges, and proposed solutions regarding the Small Reservoirs Data Portal and its application. These have been summarized into the following key points:

1. **Data quality and consistency:** Several participants pointed out inconsistencies in reservoir names and IDs, such as duplicates ("East Mamprusi" vs. "Mamprusi East") and mismatched labels ("Nalerigu" and "Bilmi Mogri"). These errors created confusion during navigation and underscored the need for harmonization of the database.

2. **Concepts of collapse vs. dry-up:** A detailed discussion emerged around how the dashboard distinguishes between reservoirs that have dried up seasonally and those that have structurally collapsed. Participants stressed that without ground-truthing, satellite data cannot always differentiate between the two. They recommended clearer terminology and integration of field-based validation to avoid misinterpretation.

3. **Limitations of key metrics:** Stakeholders highlighted the absence of water depth data, noting that depth is critical for aquaculture planning since water less than one meter is unsuitable for fish farming. While satellite imagery can capture surface area dynamics, it cannot provide reliable depth estimates for very small reservoirs. Participants suggested exploring radar-based methods, topographic proxies, or incorporating local monitoring data to address this gap.

4. **Functionality gaps:** Participants noted missing features that would make the portal more practical for field and policy use. Requests included the ability to download maps and datasets, access coordinates for navigation, and a clearer interface for returning to the home page. Participants also recommended that the "Visualize Water Status" module should explicitly display the percentage reduction in surface area as a "dry area" metric, rather than relying only on graphical interpretation. These additions, they argued, would enhance both usability and integration with other tools.

5. **Community ownership and use:** Stakeholders emphasized that most reservoirs are community-owned, and any aquaculture intervention must be developed with local buy-in and co-management. They noted that some reservoirs are reserved strictly for cattle or irrigation, and introducing aquaculture without consultation could create conflict. Local norms and decisions, therefore, need to be reflected in how the tool informs planning.

6. **Policy alignment and lessons learned:** Participants stressed the importance of aligning aquaculture suitability assessments with regulatory frameworks from agencies such as the Fisheries Commission, Environmental Protection Agency (EPA), and Water Resources Commission. They also referenced Nigeria's cluster farm model, highlighting both its successes and failures as lessons for guiding sustainable reservoir-based aquaculture development. Representatives from the Fisheries Commission discussed their stocking and management practices. Several participants also suggested collaboration on carrying capacity assessments to avoid over-exploitation of high-suitability reservoirs.

7. **Institutional collaboration:** A representative from the Ghana Irrigation Development Authority (GIDA) noted that while the dashboard currently contains full survey data for only about 900 reservoirs, GIDA maintains comprehensive data on all reservoirs under its management. He suggested exploring mechanisms to grant access or establish a data-sharing arrangement so that GIDA's datasets could be integrated into the portal. This was seen as an opportunity to enhance coverage and foster institutional collaboration in reservoir monitoring and management.

8. **Water availability and intended use:** GIDA clarified that not all reservoirs are meant to retain water year-round. Some are dugouts designed for seasonal storage or irrigation dams where water is deliberately drawn down in the dry season. As such, "drying up" should not always be interpreted as failure, but rather as reflecting design and purpose.

9. **Environmental pressures and land use:** Participants described severe siltation caused by brick-making and farming up to the reservoir edges. They noted that communities without alternative water sources tend to better protect reservoirs, whereas those in urban areas often misuse infrastructure. These land-use pressures were seen as major threats to reservoir sustainability.

The workshop concluded with several consensus points and follow-up actions that reflected both the technical possibilities of the dashboard and the practical realities raised by participants:

1. **Database refinement.** There was broad agreement that the immediate next step is to harmonize reservoir names, IDs, and figures across the portal, ensuring consistency and reliability for users. This includes addressing duplicate entries and contradictory counts of reservoirs.

2. **Improved functionality.** Participants agreed on the need to strengthen the portal's usability by adding download/export features, coordinate access for field navigation, and smoother navigation between modules. These upgrades were seen as essential for making the tool practical for planners and extension officers.

3. **Depth and validation.** Recognizing the critical role of water depth in aquaculture, participants stressed the importance of supplementing satellite-based monitoring with field-based measurements or alternative methods. They also endorsed the idea of clearer distinctions between "seasonal drying" and "structural collapse," backed by validation through ground-truthing.

4. **Community engagement.** Stakeholders agreed that aquaculture expansion must be community-led. The tool should therefore not be used in isolation, but rather as an aid for negotiations and co-management discussions with reservoir-owning communities.

5. **Policy integration.** There was consensus on the importance of aligning portal outputs with national and regional regulatory bodies, especially the Fisheries Commission, EPA, and Water Resources Commission. This will ensure that aquaculture suitability assessments are embedded in policy frameworks and do not create conflicts with existing water uses. While enforcement is challenging, there was agreement that land-use planning and buffer zone management must be prioritized in policy discussions.

6. **Capacity building and scaling.** Finally, participants emphasized the value of workshops like this in strengthening user skills and awareness. They agreed on the need for continued training, regular updates to the dashboard (e.g., including data from 2024–2025 onwards), and exploration of zonal or cluster-based approaches to guide responsible scaling of aquaculture in northern Ghana.

Towards the end of the workshop, participants were invited to complete an online survey to provide structured feedback on the sessions and the dashboard demonstration. The survey aimed to capture participants' impressions of the tool's usability, the effectiveness of the training exercises, and priorities for future improvements. Facilitators emphasized that the feedback would be incorporated into the next iteration of the dashboard and would help shape ongoing capacity-building activities.

In his final remarks, Dr. Sander thanked participants for their active engagement, constructive feedback, and willingness to test the tool critically. He stressed that the Small Reservoirs Data Portal is not a finished product but an evolving tool that will be strengthened through user input, institutional collaboration, and continued research. He also reiterated that aquaculture expansion in small reservoirs must proceed with community consent, policy alignment, and sustainable management practices. The workshop ended with appreciation for participants' contributions and a call for continued collaboration to refine and scale the dashboard.

Summary of Workshop Survey Responses

The survey from the two workshops in Accra and Tamale, part of the Sustainable Animal and Aquatic Foods Program (SAAF), gathered insights from 50 participants. The responses highlighted the Small Reservoirs Dashboard's potential for aquaculture and water management, while identifying key challenges and opportunities

for enhancement. About 88% of participants rated the dashboard as "extremely useful" for their work, with 12% finding it "somewhat useful" (see Figure 1).

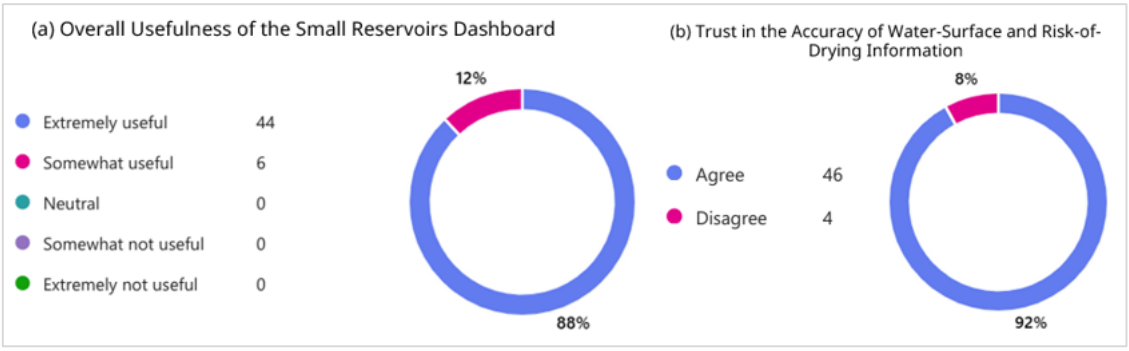

Figure 1. Perceived usefulness of the Small Reservoirs Dashboard and the level of trust in the dashboard's water-surface and risk-of-drying data among workshop participants.

The comprehensive utility of "all modules" was the most valued, cited by 66% and included monitoring water status and visualizing trends, followed by the "Aquaculture feasibility" module at 38% for its ability to identify suitable sites. Participants expressed strong trust in the dashboard's data, with 92% agreeing on the accuracy of water-surface and drying-risk information.

New insights gained included a better understanding of reservoir locations, water status trends, and aquaculture suitability across Ghana's northern regions. For instance, one farmer noted the dashboard's "great potential to raise aquaculture production in the Northern Sector," while an academic was surprised by the sheer number of reservoirs identified. However, barriers to adoption for farmers and communities were significant, with 17% citing unreliable internet access, alongside mentions of low literacy or tech skills and lack of smartphones or computers. These challenges highlight the need for accessible, user-friendly solutions to ensure broader uptake.

Most respondents (62%) plan to consult the dashboard on an as-needed basis, with 20% anticipating monthly use and 16% weekly, reflecting its perceived relevance for ongoing decision-making. All participants (100%) would recommend the dashboard to colleagues, suggesting strong confidence in its utility (Figure 2)

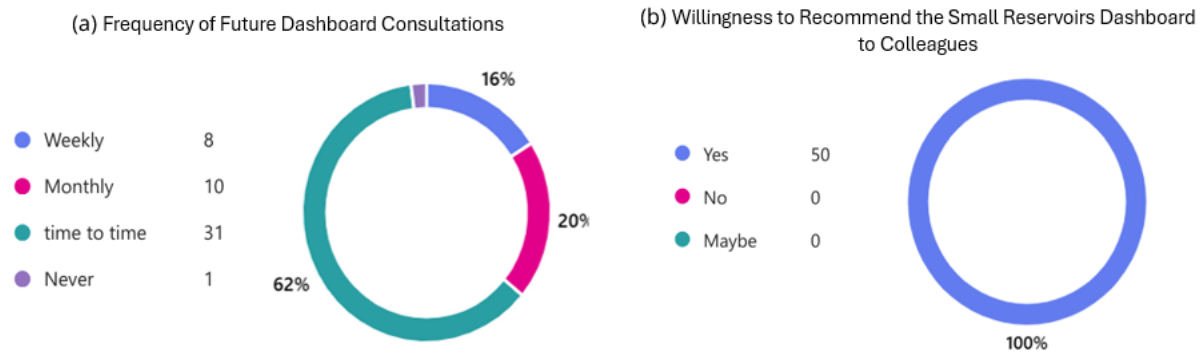

Figure 2. Participants' intended usage frequency and willingness to recommend the Small Reservoirs Dashboard to other colleagues

. Suggested improvements included downloadable data/maps (40%), reservoir carrying capacity and depth data (30%), offline access (20%), and features like search bars or back buttons (10%). For business applications, 50% emphasized integrating commercial data layers like market prices and supply-chain routes, while 20% sought input supplier information to streamline planning. As illustrated in Figure 3, participants overwhelmingly affirmed the dashboard's potential to identify new aquaculture or irrigation business opportunities, with 52% agreeing and 46% strongly agreeing (a), while 98% reported ease in locating reservoirs using filters such as region or district (b). The dashboard was seen as very useful for site selection (70%), investment prioritization (50%), and input procurement (30%), enabling organizations to make data-driven decisions efficiently.

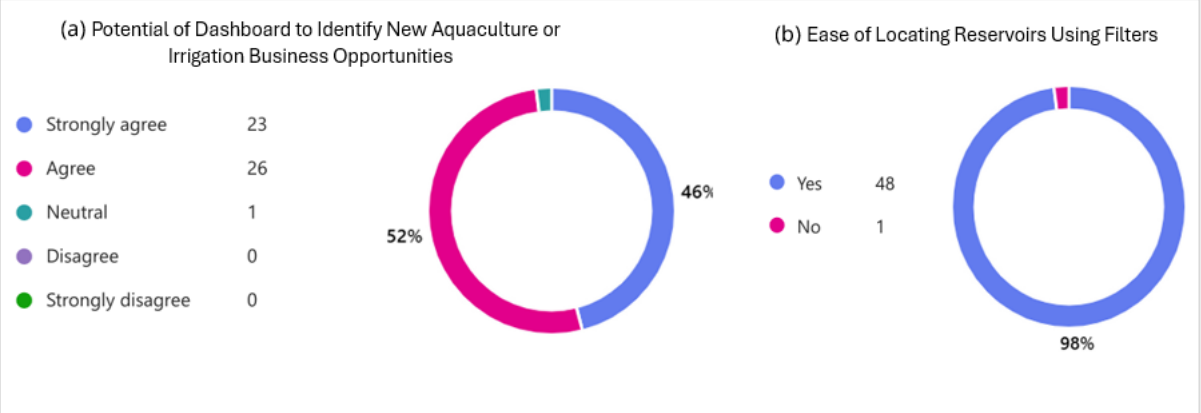

Figure 3. Participants perception on using the Small Reservoirs Dashboard to locate reservoirs of interest using the filters and identify new aquaculture or irrigation business opportunities

For local communities, participants highlighted the dashboard's role in promoting sustainable water management by providing drying-risk trends, with 60% noting its potential to guide planning. Desired community-level indicators included livelihood diversification (50%), household water access (40%), and women's involvement (30%). To enhance adoption, 50% recommended workshops and community engagement, 30% suggested videos or posters in local languages, and 20% proposed simplified apps or tools to address literacy barriers.

In the context of donor-funded projects, 80% rated the dashboard as very or extremely useful for scoping initiatives, particularly due to its data on water availability and risk of drying (60% cited as compelling evidence). Additional datasets like water quality, depth, and rainfall predictions were requested by 40% to strengthen project proposals. A notable suggestion was incorporating real-time reporting or feedback buttons to ensure data remains current and actionable.

Regarding aquaculture in small dams, 90% supported the idea, citing benefits like improved nutrition, job creation, and food security. However, challenges were acknowledged: 50% identified water drying and pollution, 30% noted theft or community conflicts, and 20% highlighted limited access to feed or funding. On species suitability, 64% believed both tilapia and catfish could thrive, though 34% favored catfish for its resilience in turbid conditions (Figure 3a). For income generation, 51% saw both species as viable, but 28% leaned toward Tilapia due to its strong market demand and cultural acceptance. Similarly, 52% viewed Tilapia as more marketable due to widespread preference, though 41% saw both as equally marketable with proper marketing (Figure 3b).

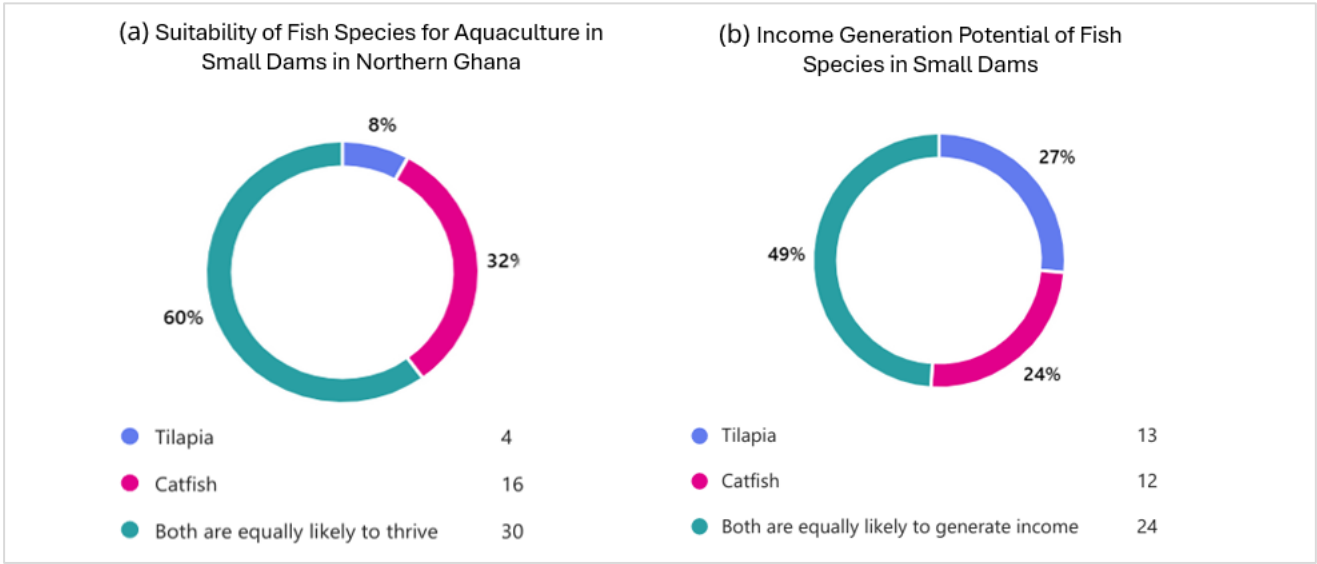

Figure 4. Stakeholder perceptions of species suitability and income potential for aquaculture in small reservoirs. (a) Perceived likelihood of tilapia, catfish, or both species thriving in small reservoirs. (b) Perceived capacity of tilapia, catfish, or both species to generate income.

On ownership models, 40% favored private investors for sustainability and profitability, 30% supported community ownership for local benefits, and 30% advocated for hybrid models to balance both. On financing, 60% believed banks could be interested if presented with low-risk, data-backed business plans, while 40% were skeptical due to aquaculture's perceived high risk.

The survey shows enthusiasm for the dashboard's role in scaling aquaculture, tempered by needs for improved accessibility, data integration, and community-focused training to maximize impact.

Successes and challenges

The presentations effectively explained the satellite imagery approach, distinguishing between automated detection and manual digitization. The validation exercise, showing alignment between computer models and human interpretation, was well received. Participants also grasped the principles of dry season monitoring (November–April) and the importance of tracking surface area changes over time.

Participants demonstrated strong engagement with the dashboard, successfully navigating its four core modules and applying filters by region, district, and reservoir. The graphs and color-coded charts effectively illustrated reservoir performance, with examples such as Langbensi's year-round water retention and Bilemi Mogri's drying issues aiding interpretation. The characterization module showcased the depth of survey data, while the multi-criteria aquaculture feasibility tool was well-received for its practical value in identifying suitable sites. The structured exercises allowed participants to practice using different dashboard functions. The progression from simple regional queries to advanced multi-criteria filtering in the aquaculture module provided a strong skill-building experience and boosted user confidence in applying the tool.

Next steps

Building on the technical demonstrations, stakeholder inputs, and consensus reached, some next steps were identified to strengthen the Small Reservoirs Data Portal and guide its application in aquaculture development and water management.

1. **Dashboard Development and Technical Improvements**
    a. The team confirmed plans for a new refurbished dashboard with new information by December 2025. This update will incorporate participant feedback including download functionality for maps and data, coordinate integration for field navigation, and feedback mechanisms for data corrections. The team committed to addressing database inconsistencies and naming harmonization issues identified during the workshop.
    b. GIDA offered to provide technical specifications and design data from their dam construction projects to enhance reservoir depth estimates and structural information in the database. The team agreed to explore integration of radar imagery and topographic data for improved depth measurement capabilities, addressing the critical limitation for aquaculture planning.
    c. Plans were confirmed to include irrigation infrastructure mapping in the next dashboard iteration, expanding beyond aquaculture to support broader agricultural development planning. This addresses requests from GIDA and other stakeholders for more comprehensive water infrastructure information.

2. **Business Model Development and Private Sector Engagement**
    a. Sustainable Aquaculture Business Models: Sander outlined ongoing work to develop sustainable business models through private sector partnerships, building on the demonstration site experiences from the past three years. The focus includes creating win-win arrangements that generate income for both private investors and communities while creating local employment opportunities.
    b. Private Sector Workshop Follow-up: Reference was made to a workshop held about two months ago in Tamale where private sector engagement discussions began. The team plans to continue these

discussions and develop concrete business frameworks that can scale aquaculture development beyond pilot sites.

c. Cluster Farming and Group Management Models: Discussions around Nigerian cluster farming concepts and local experiences with individual versus group management will inform future business model development. The team plans to incorporate lessons learned about benefit-sharing, work allocation, and community dynamics into scalable frameworks.

3. Policy Recommendations and Regulatory Framework

a. Inter-agency Coordination Framework: The workshop highlighted the need for better coordination between IWMI, GIDA, Fisheries Commission, and Environmental Protection Agency. Plans include developing joint approaches to site assessment, integrated dam design processes that consider aquaculture from the planning stage, and coordinated data sharing protocols.

b. Aquaculture Potential Zones Development: Government plans were discussed for developing "aquaculture potential zones" that would bring infrastructure and support services to underutilized community-owned reservoirs. This involves government investment in infrastructure (telecommunications, roads, electricity) to make areas attractive for private sector investment while facilitating community negotiations.

4. Monitoring and Data Collection Expansion

a. Annual Database Updates: The team committed to continuing annual updates of the portal to track new reservoir construction, abandonment, and performance changes. Plans include incorporating subsequent years to monitor whether dam numbers are increasing or decreasing and assess long-term performance trends.

b. Siltation and Environmental Monitoring: The team plans to explore monitoring capabilities to better track siltation impacts and environmental changes affecting reservoir sustainability. This builds on existing work with the Golinga Irrigation Scheme and other sites where siltation has caused significant problems.

5. Scaling and Replication Plans

a. Regional Expansion Potential**:** The dashboard framework and methodology can be applied to other regions beyond northern Ghana, providing a scalable approach for small reservoir assessment and aquaculture development planning across West Africa and similar environments.

b. Stakeholder Engagement and Training: Plans include expanding stakeholder engagement beyond the current workshop participants to reach additional organizations and potential users. The team emphasized the importance of advertisement by participants to their colleagues and broader dissemination of the dashboard capabilities.

c. Community-Based Management Models: Future work will focus on developing community-based management models that balance individual and collective ownership approaches. This includes creating template regulations and benefit-sharing agreements that communities can adapt to their specific contexts.

6. Research and Development Priorities

a. Depth Measurement Technology Development: Ongoing research priorities include developing cost-effective methods for measuring water depth in small reservoirs, essential for aquaculture planning. This may involve integration of drone technology, improved satellite methods, or community-based measurement protocols.

b. Climate Change Adaptation Integration: While climate change factors are included in current models, future work will expand climate adaptation considerations as rainfall patterns and temperature regimes continue to change, affecting reservoir performance and aquaculture viability.

c. Value Chain Development Support: Future business model work will address broader value chain development including feed supply, fingerling production, processing facilities, and market linkages necessary for sustainable aquaculture scaling beyond individual farm operations.

Annex

- **Workshop agenda.**

Time	Session	Facilitator
08:30–09:00	Arrival and registration of the participants	IWMI
09:00–09:15	Welcome & opening remarks	Sander Zwart
09:15–09:35	Data sources, portal structure, navigation overview	Komlavi Akpoti
09:35–10:00	Visualize water status: Visualize the evolution of surface area during the dry season from November to April	Komlavi Akpoti
10:00–10:20	Characterize: Multiple use, irrigation infrastructure, water quality, aquaculture, and accessibility.	Komlavi Akpoti
10:20–10:30	Coffee Break	Komlavi Akpoti
10:30–11:00	Aquaculture suitability	Komlavi Akpoti
11:00–11:45	Group discussion & Brainstorming on the potential use of the dashboard and hands on exercise	Sander Zwart
11:45–12:15	Workshop surveys	Sarah Appiah
12:15–12:30	Closing Remarks & Summary of key takeaways	Sander Zwart
12:30–01:30	Lunch	

- **Workshop Photos**

(*Photos:* Amissah Klinsman/ IWMI)


IWMI International Water Management Institute
Workshop Survey
https://forms.office.com/e/L6pj6gejsg
Sustainable Animal and Aquatic Foods Science Program (SAAP)
CGIAR

(*Photos:* Amissah Klinsman/ IWMI)

Table 3. Aggregated Survey Insights by Key Themes

Theme	Key Findings	Participant Quotes/Examples
Dashboard Usefulness & Frequency	- Extremely useful: 88% (44); Somewhat useful: 12% (6). - Most valuable modules: All modules (66%), Aquaculture feasibility (38%). - Planned usage: Time to time (62%), Monthly (20%), Weekly (16%), Never (2%).	"great potential to raise aquaculture production" (Farmer). "Database" (Academic).
New Insights & Barriers	- Insights: Reservoir locations/trends (18%), e.g., "number reservoirs," "suitability." - Barriers: Internet access (17%), Literacy/tech skills, Device lack.	"reservoirs for aquaculture" (NGO). "Internet access" (Multiple).
Recommendations & Improvements	- Recommend to colleagues: Yes (100%). - Desired features: Downloadable data/maps (40%), Carrying capacity/depth (30%), Offline access (20%), Search/back buttons (10%). - Business integration: Market prices/supply chains (50%), Input suppliers (20%).	"Detail information on data analyzed" (Academic). "market prices" (Multiple).
Applications for Organizations/Communities	- Top decisions improved: Site selection (70%), Investment prioritization (50%), Input procurement (30%). - Community support: Drying-risk trends (60%), Indicators: Livelihood diversification (50%), Household water access (40%), Women's involvement (30%). - Training needs: Workshops/community engagement (50%), Videos/posters (30%), Apps/tools (20%).	"sustainable use via drying-risk trends" (NGO). "Training on use" (Academic).
Donor/Project Scoping	- Usefulness for projects: Very/Extremely useful (80%). - Needed datasets: Water quality/depth (40%), Rainfall predictions (10%). - Compelling evidence: Water availability/drying risk (60%).	"real time data on project-specific suitability" (NGO). "drying risk" (GIDA).
Aquaculture in Small Dams	- Good idea: Yes (90%), for nutrition/jobs. - Challenges: Drying/pollution (50%), Theft/conflicts (30%), Feed/funding (20%). - Species thriving: Both (64%), Catfish (34%). - Income generation: Both (51%), Tilapia (28%). - Marketability: Tilapia (52%), Both (41%). - Ownership: Private (40%), Community (30%), Hybrid (30%). - Financing interest: Yes (60%), No (40%) if high risk.	"Improves nutrition, income" (Academic). "Catfish are hardy" (NGO).

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We would like to thank all funders who support this research through their contributions to the CGIAR Trust Fund: www.cgiar.org/funders.

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