



Making Capacity Development Stick: Evidence from Rwanda's WASH Systems Academy

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March 2026

A Knowledge Product from the Isoko y'Ubuzima Project

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Introduction

Isoko y'Ubuzima (2021 – 2026), a U.S. Government-funded WASH project in Rwanda, aims to improve water, sanitation, and hygiene (WASH) services in rural Rwanda. Recognizing that strong WASH systems require skilled and empowered actors, capacity development, the process of enhancing the abilities, skills, resources, and institutions of individuals, organizations, and communities so they can achieve their goals more effectively and sustainably, was a core strategy.

In collaboration with Water For People, IRC has led a series of targeted interventions to enhance technical knowledge and promote system thinking. These interventions aimed to equip stakeholders from local government officials to service providers with tools and insights to navigate complex WASH systems, thereby supporting more resilient and accountable service delivery. The aim is not only to enhance technical knowledge, but also to foster a systems-thinking approach aimed at long-term service sustainability and institutional accountability.

The interventions are expected to help WASH actors strengthen systems by adopting system-oriented mindsets, improving their practices, and fostering stronger relationships; all of which contribute to sustainable services for all.

This learning paper documents progress across different parts of the project's system-strengthening theory of change. Section 2 outlines the interventions; Section 3 examines their outcomes in terms of changes in knowledge, mindsets, and relationships; Section 4 assesses how these have contributed to stronger national and local systems; and Section 5 presents conclusions and recommendations.

The analysis draws on a mixed-methods approach, combining qualitative and quantitative data. Sources included secondary data, project reports, training participant records, pre- and post-training surveys, annual outcome harvesting, field reports, and semi-structured key informant interviews (KIIs). At the district and national level, impact was assessed using annual Sustainable Services Checklist scores and national building block assessments.

Capacity Development Interventions

This section outlines the interventions delivered under *Isoko y'Ubuzima*, their approaches, and outputs.

Capacity development interventions fell into four main categories:

- Development of Rwanda-specific courses
- Capacity development events
- On-the-job support and coaching
- Learning exchanges

Development of Rwanda-specific online courses

The course platform used was the WASH Systems Academy, a global platform offering Massive Open Online Courses (MOOCs) on systems strengthening for the WASH sector. Through the *Isoko y'Ubuzima* project, IRC adapted three courses to the Rwandan context:

- *WASH Systems Strengthening for Rwanda* (8 hours, launched March 2022)
- *District Planning for Sustainable WASH Services in Rwanda* (8–10 hours, launched March 2023)
- *Costing for District WASH Planning in Rwanda* (4.5 hours, launched July 2023)

These free online courses have been widely promoted, integrated into blended learning events, and increasingly embedded in training programs in the country.

Capacity development events

Between January 2022 and September 2025, IRC organized 19 workshops, webinars, and blended sessions, reaching 555 stakeholders across government, private sector, academia, and civil society.

Initially, courses were promoted for self-study, but completion rates were low (11% in 2022 for *WASH Systems Strengthening for Rwanda*) blended learning, combining plenary sessions, group work, and guided self-study — significantly improved completion rates. For instance, one blended learning event for local government related to the WASH Systems Academy course on “*Designing Market-Based Sanitation Solutions*” was completed at a rate of 86% in September 2025. Feedback has been overwhelmingly positive: 98% of respondents found the courses interesting, 99% reported learning something new, and 100% would recommend them. Rwanda’s completion rate (43%) exceeded the global average (31%).

WASH Systems Academy courses were also used indirectly, as the basis for in-person capacity development sessions and webinars, and as reference materials and recommended reading for further learning.

Training events focused on the following topics:

- The Basics of WASH systems strengthening

- The WASH systems building blocks
- District WASH master/investment planning
- Life-cycle costing of investment plans
- Finance
- Advocacy
- Climate-resilient WASH services
- Market-based sanitation

Each capacity development event was designed to reach one or more stakeholder groups, including national government institutions, district governments from ten districts, private operators, young water professionals, and university lecturers. Some sessions were tailored to a single group: four targeted national government staff, four focused on district government staff, three on the private sector, two on young professionals, and two on university lecturers. Other trainings brought together multiple groups. For example, three sessions included both national and district government representatives, while one involved participants from the national government and the private sector. Participants, particularly those at the local level, noted that having both national and district stakeholders in the same training was especially valuable.

“The trainings [...] are holistic, and the practical examples provided make it easy to connect them to our own context and situation. They also help us to clearly understand and think critically about how to apply the knowledge. In future trainings, it would be good to have more diversified groups. For example, instead of only including district-level participants, we should also involve national-level policymakers. This would create space for collective learning, dialogue, exchange, and advocacy, helping to accelerate change on all sides.” - Joseph Murwanashyaka, District Water and Sanitation Officer, Nyabihu District

“I even encourage my students who participated in the training events to register and take online courses themselves. Personally, I can’t wait for the holidays to take other courses like the Building Blocks.” - Lecturer Charlotte Uwimpuhwe.

On-the-job support and coaching

In addition to the above-mentioned courses and training courses, capacity development interventions under Isoko have included on-the-job support to national and district actors. Examples include:

- Supporting the 2022 Sector Performance Review and multi-year action plan (2022-2024).
- Facilitating national building block assessments, revealing the two weakest building blocks in the Rwandan WASH sector: 1) infrastructure management, particularly in rural areas, and 2) financial gaps to reach NTS1 targets, which informed revisions of the National Water and Sanitation Policy and the WASH Finance Strategy, to achieve its National Strategy for Transformation targets.
- Strengthening District WASH Boards (DWASHBs) through training and annual reflection meetings.

- Annual district-level reflection meetings, which brought together WASH stakeholders in the district, including local government, NGOs, service providers, and the private sector, to increase collaboration and improve service delivery.
- Coaching WASAC staff (Environment Specialist, Water Infrastructure Development Engineer, and Water Infrastructure Planning Engineer) on integrating sustainability into project preparation, in collaboration with Vitens Evides International.

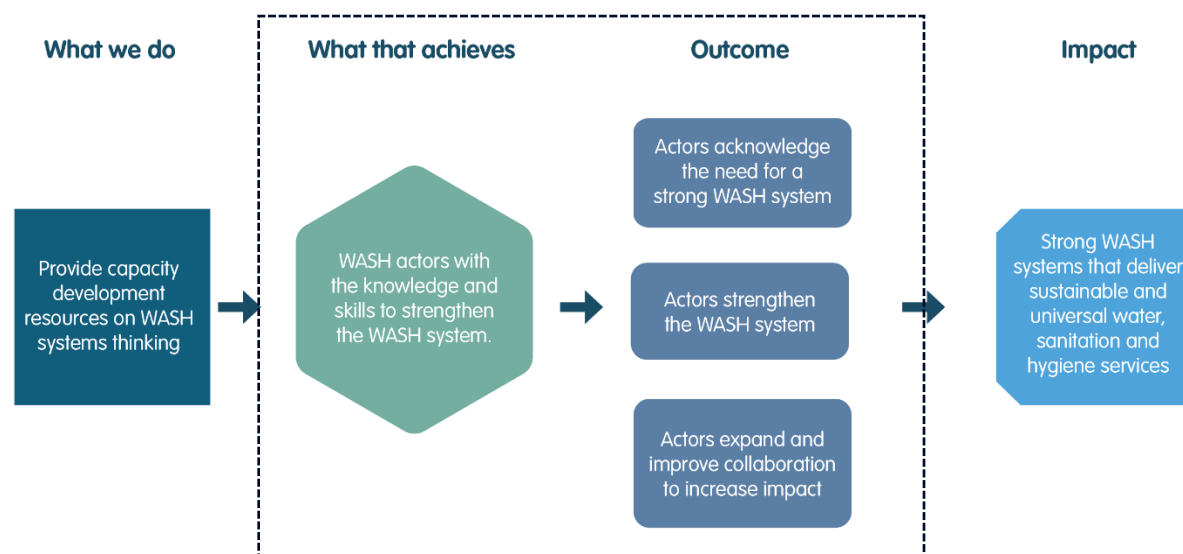
Learning exchanges

The Isoko y'Ubuzima project facilitated knowledge sharing through both national and international exchanges. Examples include:

- Inter-district DWASHB exchanges (2024), where Nyamagabe district shared its public tap monitoring tool with peers. This exchange visit involved 140 district-level stakeholders.
- A 2024 visit to Odisha Water Corporation (India), exposing national WASAC leaders to smart water management technologies and customer engagement models (Smart Water Management System tools like Programmable Logic Controllers (PLC), SCADA, and IoT-based real-time monitoring)

Outcomes from capacity development

The interventions generated outcomes across four dimensions: knowledge, mindsets, practices, and relationships.



Self-assessed knowledge improvements

Pre- and post-training survey data consistently showed significant increases in self-assessed knowledge. All respondents reported learning something new, and most saw opportunities to apply insights directly in their work.

The table illustrates the increase in self-assessed knowledge on the different training topics covered in the capacity development events.

Table 1: Self-assessed rate of knowledge on the training topic, pre-and post-training

Capacity Development events	Number of surveys (n)		Average self-assessed rate of knowledge (out of 5)		Score increase
	pre-training	post-training	pre-training	post-training	
5-day blended learning course for districts on: District planning for sustainable WASH services in Rwanda	38	24	3.3	4.4	1.1
Costing for district WASH planning	32	16	no data ¹	4.5	NA
2-day training for young professionals on Building Blocks	53	18	3.6	4.2	0.6
3-day training for districts on Building Blocks	23	16	3.5	4.3	0.8
Training for WASAC on Climate resilience WASH	19	15	3.8	4.7	0.9

A strong majority of respondents (100% for the planning, costing, and climate resilience courses, and 83% and 81% for the building block courses for young professionals and districts, respectively) indicated that they saw opportunities to apply course content in their work.

¹ Due to an error in the pre-training survey, it did not include questions about the pre-training level of knowledge on the training topics at the time of the blended learning course.

Changed mindsets

Stakeholders shifted from short-term, infrastructure-focused thinking to a systems perspective that emphasizes sustainability. Quotes from engineers, operators, and district officers illustrate greater awareness of lifecycle costing, interconnected building blocks, and the roles of communities and private sector actors.

“The training [on building blocks] has helped the shift from a static mindset to a more dynamic way of seeing things.” - Emmanuel Hategekimana, Senior Engineer in charge of Rural Water Supply at MININFRA.

“I no longer focus only on the immediate costs of delivering services — I now think long term”. - Tuyisenge Yves, Extension and New Connection Water Engineer at WASAC’s Nyamagabe Branch.

“The costing course [helped] me better understand operational and capital expenses, which is critical for sustainable service delivery.” - Moise Irankunda, Geographic Information System Specialist at WASAC.

Changes in mindsets also involved stakeholders adopting a systems perspective on water supply and sanitation and recognizing and appreciating system complexity and interconnectedness.

“As an engineer, I was familiar with the infrastructure block but less aware of the others — like policy, institutions, planning, and financing. I came to see how these blocks are interconnected and how they complement each other to build a strong WASH system. [...] I have come to understand that WASH is not only about infrastructure. Today, I recognize both the actors and the factors. When I look at the community, I see them as an integral part of WASH services; when I look at the private sector, I see them as a strong pillar with potential to support those services.” - Joseph Murwanashyaka, District Water and Sanitation Officer, Nyabihu District.

“I used to think about projects as isolated tasks, but this course taught me that a successful project requires interconnected systems. For private operators like me, this knowledge ensures we can deliver sustainable services and respond effectively to community needs”. - Cyubahiro Manzi Patrick, Managing Director of Axion Water Solution

Practical applications

Capacity development delivered concrete outcomes in many instances, which are being followed up on in subsequent evaluations. Examples include:

- Revising national policies and strategies, including the 2023 National Water and Sanitation Policy.
- Integrating lifecycle costing and climate resilience into planning and procurement.
- District-level decision-makers are prioritizing long-term functionality (e.g., choosing easily replaceable water meters).
- WASAC is piloting NRW reduction measures inspired by the Odisha exchange, cutting losses in one sub-area from 40% to 9%.

- DWASHBs are adopting new tools, engaging broader stakeholders, and addressing issues like vandalism and unpaid bills.
- University lecturers are embedding systems-based content into curricula, influencing the next generation of professionals.

The capacity development interventions and newly introduced tools have influenced the way planning and budgeting are conducted, according to participants in the capacity development program.

"[The] courses gave me new tools to improve our planning processes. For instance, we now require consultants to include climate resilience components in their project proposals, and two of such projects have already been validated." - Moise Irankunda, a Geographic Information System (GIS) Specialist at WASAC.

"This training introduced me to a holistic planning methodology that I still use today. With the tools provided, I learned to plan better for the full lifecycle functionality of infrastructure and to factor in all potential costs, including operation and maintenance." - Tuyisenge Yves, Extension and New Connection Water Engineer at WASAC's Nyamagabe district Branch,

National stakeholders enhanced their ability to address district-level WASH challenges, and district government stakeholders better understood the challenges faced by the private sector.

"The Costing for District WASH Planning course equipped me with the skills to apply Lifecycle Costing tools, which are crucial for budgeting and resource mobilization as well as facilitating universal access to water and sanitation services in partnership with local stakeholders." - Eng. Emmanuel Hategekimana, Rural Water Supply Senior Engineer at the Ministry of Infrastructure.

"Instead of focusing on short-term gains, we considered long-term functionality. The contractor had suggested a specific brand of water meters, but it became clear that Private Operators would struggle to replace them when needed. We therefore chose meters available on the local market, which could be easily replaced, ensuring the sustainability of services." - Joseph Murwanashyaka, District Water and Sanitation Officer, Nyabihu District.

Local exchange visits between districts introduced new tools and ways of working to the participating districts.

The exchange visit to the Odisha Water Corporation in India led to WASAC addressing Non-Revenue Water (NRW) on a pilot basis. In July 2024, WASAC Senior Managers selected pilot areas in Ntora, close to Kigali, to function as a District Monitoring Area (DMA)² for the reduction of NRW. As a result, NRW in Kacyiru Branch has gone down from 40% to 21% and even to 9% in one of the sub-DMA already (personal communication Olivier Karangire, 2025).

In October 2024, the Rwamagana DWASHB invited sector land managers to its meeting and adopted the public tap management tool introduced by Nyamagabe District through the inter-district DWASHB learning exchange. This tool will support closer monitoring of water service delivery. Previously, the district lacked a daily monitoring mechanism for public tap management, which was essential for improving service delivery at the community level.

Institutional collaboration is essential for attracting and managing financial resources for the WASH sector. Participants in the September 2024 finance course emphasized that coordinated efforts between government bodies, private operators, and other stakeholders are crucial to ensuring long-term financial sustainability.

“In Nyabihu specifically, I have seen a commendable improvement in how stakeholders meet, discuss, and solve WASH issues. DWASHB meetings are now held regularly, and district reflection meetings have been embedded into our annual plans. These platforms will continue to be strengthened, because we understand that together we make the system,” - Joseph Murwanashyaka, District Water and Sanitation Officer from Nyabihu District.

Since January 2023, Ngoma District security agencies have been actively engaged in addressing water infrastructure vandalism through the DWASHB platform and have also begun following up on unpaid water bills to help reduce NRW. These actions have contributed to a more positive community attitude toward WASH infrastructure. The experience underscores both the value of the DWASHB in addressing WASH challenges and the importance of diverse stakeholder participation in fostering collaboration to sustain water services.

Involvement of university lecturers has also influenced how a new generation of professionals learn about the WASH sector.

“The platform’s evidence-based materials have transformed how I teach. When I discuss water demand with my students, I can’t ignore topics like water losses, costs, and related challenges - all of which I learned through the WASH Systems Academy. - Charlotte Uwimpuhwe, assistant lecturer at the University of Rwanda, Department of Civil, Environmental and Geomatics Engineering, School of Engineering, College of Science and Technology

² A District Metering Area (DMA) is a defined section of a water distribution network where all water entering and leaving the area is metered to detect leaks (physical losses) and track water consumption (to limit commercial losses), which helps monitoring and mitigating NRW.

There is even interest in integrating WASH Systems Academy courses into internal institutional training programs. In 2025, the Isoko y'Ubuzima project began discussions with WASAC on the integration of the material into its induction program for new staff. This initiative aligns with WASAC's vision of establishing a training center that will sustain capacity-building efforts long after the project ends.

Stronger collaboration

Recognizing the strong interlinkages between organizations in the sector led to efforts to improve coordination and foster collaboration, resulting in stronger relationships. Stakeholders from other sectors are increasingly included in sector working groups, especially for validation of documents (personal communication, Olivier Kanangire, 2025). This was also the case at the district level.

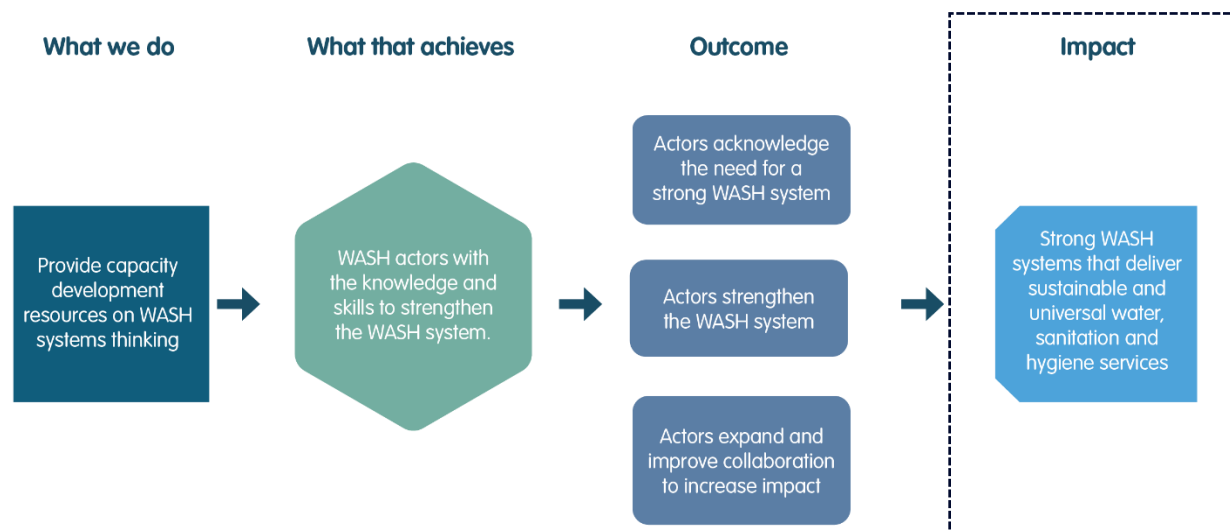
Involvement in several capacity development interventions "... has influenced the way I work with other WASH stakeholders. I now see all of them as part of the system that keeps water running in the taps, and I better understand the value each one brings." - Joseph Murwanashyaka, District Water and Sanitation Officer, Nyabihu District.

"Collaboration has become stronger overall, at the level of the district. With both new and existing partners, we now recognize the different actors and make use of all available stakeholders. The DWASHB provides a platform where any relevant stakeholder can be invited to improve services. For example, in the last DWASHB meeting, sector land managers were invited. Although they are not regular members, we acknowledged their important role in influencing community ownership of WASH services. Together, we were able to start exploring potential solutions," - Tuyisenge Yves/ Extension and New Connection Water Engineer, Nyamagabe Branch.

Similarly, other DWASHBs have embraced this approach. In 2024, the Nyagatare DWASHB invited sector authorities to address the issue of high unpaid water bills by public tap managers. Before this decision, WASH issues of such nature lacked a clear structure for collective follow-up, which limited accountability. The strengthened role of DWASHBs, particularly through capacity development interventions, has enhanced relationships at the local level and encouraged collaborative problem-solving across districts.

Our Impact: Stronger and More Sustainable WASH Systems

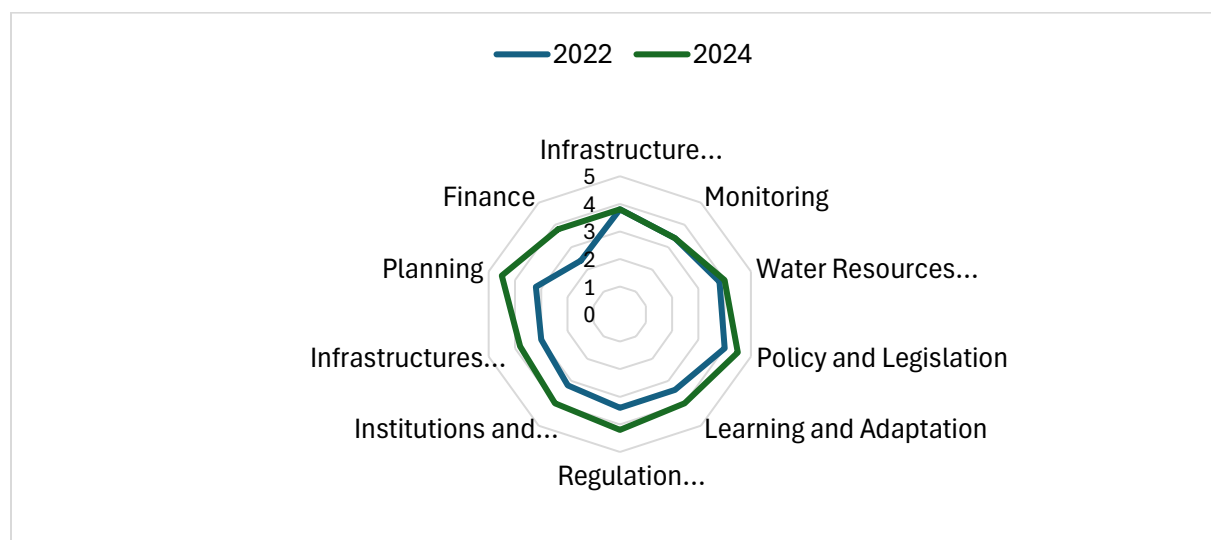
This section focuses on the impact of project interventions and the resulting achievements and outcomes. There is evidence of lasting change in system strength at national and local levels, contributed to in large part by the capacity development activities.



National Level

Building block assessments (2022–2024) show improvements in infrastructure management, planning, and finance; areas directly targeted by interventions. While this achievement can be attributed to several sources rather than this work alone, evidence suggests interventions significantly contributed to these gains.

Figure 1: National WASH Building Block assessment scores



District Level

Annual Sustainable Services Checklist (SSC) scores rose overall across all ten focus districts, though with some fluctuations. The SSC is an annual evaluation conducted by Water For People to measure the key drivers of sustainability of WASH services in a district and its readiness for “Exit” according to the *Everyone Forever* model.

Figure 2 shows that the average SSC score has increased in all districts compared to baseline. Three districts (Ngoma, Nyanza, Ruhango) consistently gained points, while five districts (Kayonza, Ngororero, Nyabihu, Nyagatare, Rwamagana) had lower scores in 2025 compared to 2024. The average scores in Kirehe dropped in 2023 but increased afterwards.

Figure 2 2: District Sustainable Services Checklist (SSC) Scores from 2022 to 2025.

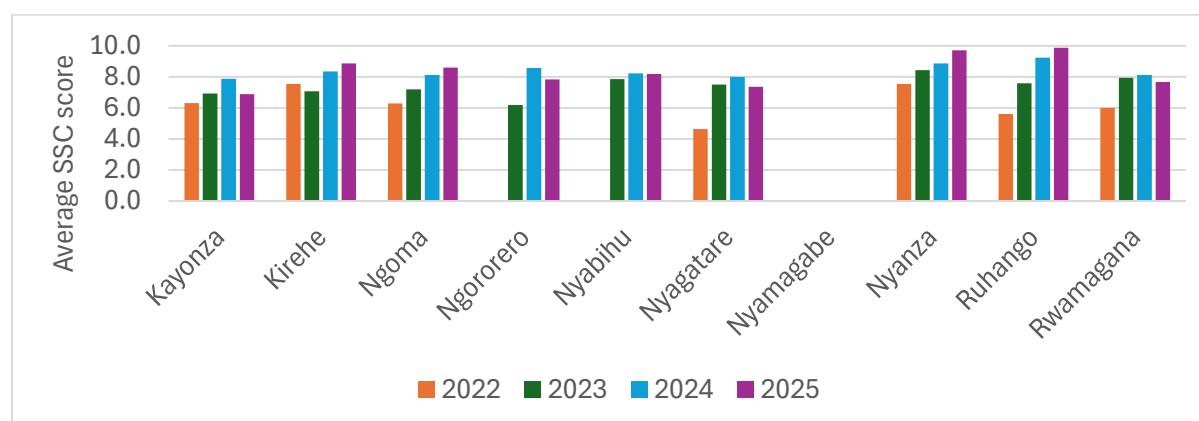


Figure 3 presents the change in the SSC scores per indicator. It shows improvements except for the service provider structure and operations. Indicators such as service authority structures, finance, management and monitoring, and service provider finance and water resource management have seen considerable strengthening, as they have been key targets of the capacity development interventions.

Figure 3: The change in the SSC scores per indicator 2022-2025.

Water supply indicators	Kayonza	Kirehe	Ngoma	Ngororero	Nyabihu	Nyagatare	Nyamagabe	Nyanza	Ruhango	Rwamagana	Overall
Service Authority - Structure	→	→	→	↑	→	↑		→	→	→	↑
Service Authority - Finance	↑	↑	↑	→	↑	↑		→	↑	↑	↑
Service Authority - Management	↑	→	→	→	→	↑		↑	↑	↑	↑
Service Authority - Monitoring	↑	→	↑	↑	→	↑		→	↑	↑	↑
Service Provider - Structure	→	→	→	↑	→	→		↓	→	→	↓
Service Provider - Finance	↓	→	↑	↑	→	→		→	→	→	↑
Service Provider - Operations And Maintenance	→	→	→	↑	→	→		→	→	→	→
Water Resource Management	↑	→	↑	↑	→	↑		↑	↑	↑	↑
Overall Water supply	↑	↑	↑	↑	↑	↑		↑	↑	↑	↑
Sanitation Indicators	Kayonza	Kirehe	Ngoma	Ngororero	Nyabihu	Nyagatare	Nyamagabe	Nyanza	Ruhango	Rwamagana	Overall
Service Authority - Structure & Management	↓	↑	↑	→	→	↑		→	↑	→	↑
Service Authority - Finance	→	↑	↑	↑	→	→		↑	↑	→	↑
Service Authority - Monitoring	→	→	→	→	→	→		→	↑	→	↑
Overall sanitation	↓	↑	↑	↑	→	↑		↑	↑	→	↑

Complementing the Sustainability Service Checklist, the project also applied the Qualitative Information System (QIS) assessment on an annual basis. The QIS is a participatory monitoring tool developed by IRC to capture institutional performance and governance quality at the district level. It measures five core dimensions, including human resources, monitoring, information systems, planning and budgeting, accountability and regulation, among others, through a scoring system that enables districts and stakeholders to track progress over time. Unlike the SSC, which focuses on service delivery outcomes, the QIS zooms in on institutional capacity, offering insights into how District WASH Offices and DWASHBs are evolving as governance platforms.

Annual QIS sustainability assessments revealed great improvements in planning, budgeting, gender equity and social inclusion, and accountability. However, persistent challenges remain in monitoring and information systems.

Table 2 presents the QIS results for all ten project districts' WASH offices and WASH board. These data complement the qualitative evidence of stronger collaboration, improved planning, and increased stakeholder accountability observed across districts.

Table 2: District WASH office and board Qualitative Information System (QIS) scores from baselines in 2022 to FY 2024.

Nbr	Institutions strengthened, showing improvement according to the QIS assessment	Baseline 2022		Scores 2023		Scores 2024		Traffic light Color Score
		Score/20	%	Score/20	%	Score/20	%	
1	Rwamagana district WASH office	12	60	15	75	17	85	
2	Rwamagana district WASH board	11	55	15	75	17	85	
3	Kayonza district WASH office	13	65	15	75	17	85	
4	Kayonza district WASH Board	9	45	14	70	13	65	
5	Nyagatare district WASH office	13	65	13	65	14	70	
6	Nyagatare district WASH board	8	40	9	45	11	55	
7	Ngoma district WASH office	13	65	15	75	17	85	
8	Ngoma district WASH board	10	50	10	50	15	75	
9	Kirehe district WASH office	10	50	15	75	17	85	
10	Kirehe district WASH board	10	50	13	65	16	80	
11	Ngororero district WASH office	12	60	15	75	16	80	
12	Ngororero district WASH board	12	60	11	55	9	45	
13	Nyabihu district WASH office	14	70	15	75	15	75	
14	Nyabihu district WASH board	13	65	13	65	17	85	
15	Ruhango district WASH office	9	45	13	65	16	80	
16	Ruhango district WASH board	7	35	13	65	16	80	
17	Nyanza district WASH office	13	65	15	75	17	85	
18	Nyanza district WASH board	11	55	12	60	15	75	
19	Nyamagabe district WASH office	12	60	15	75	18	90	
20	Nyamagabe district WASH board	12	60	15	75	16	80	

The results show consistent improvements across both District WASH Offices and DWASHBs. Average scores increased from around 60% at baseline to over 80% in 2024 for District WASH Offices, and from around 55% to 75–85% for DWASHBs. Gains were higher in planning and budgeting, aligning with the project's targeted capacity development interventions. At the same time, the QIS results highlight ongoing challenges with monitoring and information systems, pointing to areas for continued support.

Like the national level, while the strengthening of local-level WASH systems cannot be entirely attributed to the capacity development interventions of the Isoko y'Ubuzima project, this learning paper has provided evidence of a strong association between the two.

Conclusions and recommendations

What have we learned?

- In line with the Isoko y'Ubuzima project's theory of change, we observe that the implementation of the comprehensive package of capacity development interventions has enhanced knowledge, shifted mindsets, influenced practices, and improved relationships, all of which contribute to stronger WASH systems.
- Blended learning is far more effective than self-study alone, especially for busy sector professionals.
- Exchange visits and coaching provide practical, lasting impacts beyond conventional training.

Recommendations

- Adopt a holistic approach to capacity building, combining training with coaching, reflection meetings, and exchanges.
- Engage both national and district stakeholders in joint activities to strengthen relationships and mutual understanding.
- Adjust capacity development activities to specific target groups. Stimulating actor engagement through blended learning events is especially useful for sector professionals with limited time. This model increases the course completion rates. On the other hand, students and young professionals are encouraged to engage with self-paced courses after having been introduced to the WASH Systems Academy courses.
- Involve national training institutes or universities in capacity development interventions to facilitate scale-up and long-term sustainability of these interventions.

Disclaimer

This knowledge product was funded by a grant from the United States Department of State. The opinions, findings, and conclusions stated herein are those of the authors and do not necessarily reflect those of the United States Department of State.