School Quality Assurance Officers' AI support tool in Sierra Leone: report on user feedback

This report was prepared by Fab Inc, a partner in the Sierra Leone Secondary Education Improvement Programme II (SSEIP II) – known as Leh Wi Lan – with funding from UK International Development.

Background

School Quality Assurance Officers (SQAOs) are pivotal to drive improvements in education standards across schools in Sierra Leone. Through regular school visits, performance reviews, and the provision of targeted support and feedback, SQAOs can help schools improve their teaching and learning environments. These activities are already carried out in a structured and consistent manner. However, recent assessments and monitoring activities have highlighted several areas where the current system can be strengthened:

- **Limited coverage:** SQAOs are currently unable to visit every school within an academic year, and the distribution of visits is uneven. This means that some schools receive more attention and support than others, leaving gaps in quality assurance across the system.
- **Insufficient contextual information**: SQAOs often organise and begin their visits without access to key contextual information about the schools they are visiting. This lack of information limits their ability to prioritise support for the schools that need it the most and to make the most of their limited time in schools.
- **Limited focus on performance**: The current tools used by School Quality Assurance Officers (SQAOs) during their visits are primarily oriented toward compliance rather than actual school performance. These tools often duplicate data already collected through the annual school census and fail to generate actionable insights for school managers and decision-makers.
- **Guidance on improvement:** While SQAOs are generally effective at identifying strengths and weaknesses within schools, they frequently lack the confidence or expertise to offer clear, actionable guidance on how to address areas needing improvement. Furthermore, the existing tools do not support SQAOs in helping schools determine practical next steps for enhancing performance.

Pillar 2 of the Sierra Leone Secondary Education Improvement Programme II (SSEIP II), implemented by Leh Wi Lan, focuses on strengthening government systems, particularly by strengthening monitoring, supervision and support for schools by districts.

In response to the challenges identified with existing quality assurance processes, the programme has led to significant revisions of the school quality assurance external tool. These revisions were developed in alignment with ministry priorities, shifting the focus toward assessing actual school performance rather than mere compliance. The updated tool is designed to generate meaningful indicators for both national and district education managers, enabling more informed decision-making and targeted support for schools.

To further support SQAOs in their roles, a new AI-driven support tool was designed to support the revised quality assurance system, offering two functions to support SQAOs:

1. **On-demand, cluster-based access to relevant information:** Through chat conversations via WhatsApp, it (now) provides access to the latest 2024 Annual School Census (ASC) data.
2. **Quality assurance on issues and actionable recommendations:** The tool retrieves information from the MBSSE library[1], which includes all relevant national policies, and school management and supervision materials.

The tool includes a feedback feature that allows users to flag responses they believe are incorrect or misleading, enabling continuous improvement.

This document presents the findings from user-feedback sessions with five SQAOs in Western Area Rural. Over four weeks of focus-group discussions and on-site trials, we assessed whether the following core assumptions held true under realistic working conditions. The insights gathered here will form the foundation for subsequent development phases, ensuring that future enhancements address real user needs and field realities:

1. **ASC data reliability and accessibility.** Can officers retrieve up-to-date school metrics quickly and trust their accuracy?

2. **Accuracy of SQAO-to-cluster assignments.** Does the system correctly recognise each officer's assigned schools?

3. **Relevance of chatbot content.** Is the guidance drawn from MBSSE documents both current with policy changes and genuinely useful for day-to-day supervision?

4. **Mobile and connectivity readiness.** Do SQAOs have the devices and network access required to use the tool seamlessly in the field?

5. **Effectiveness of the "red card" feedback loop.** Are officers able to spot and flag incorrect or missing information, and does the mechanism function smoothly?

[1] Using a Retrieval-Augmented Generation (RAG) approach

6. **Participation & engagement in user testing.** Are SQAOs able to attend in-person sessions and engage sufficiently with the chatbot to provide meaningful feedback?

The sections that follow detail how each assumption was tested, the evidence gathered, and the implications for tool refinement and rollout.

User Feedback Results

The AI tool user test was designed to be simple and focused, allowing SQAOs to test the tool under realistic working conditions. Five officers (three men and two women) were selected based on their roles, locations, and past involvement in quality assurance initiatives. As the 2022 ASC was only available during the testing, it was conducted using older data which has since been updated.

The process began with a four-hour in-person training session. During this session, officers were introduced to the AI tool's functions, practiced submitting queries, learned how to report issues, and explored how to access ASC data using the tool.

Following training, each officer participated in weekly two-hour focus group discussion sessions over the next four weeks. These sessions provided opportunities to discuss their experiences, explore specific scenarios, troubleshoot problems, and make recommendations for improvement as well as to provide more training to keep them engage. In between sessions, officers were encouraged to use the AI tool independently—either in preparation for school visits or while on-site.

Findings Against Tested Assumptions

The four-week testing period generated both quantitative usage metrics and rich qualitative insights. Officers progressively increased their engagement with the tool—moving from basic data retrieval to on-the-spot problem-solving and recommendation generation. Several system-related issues (such as the cluster access restriction and minor prompt refinements) were addressed in real time, while other enhancements (live data syncing, offline support and expanded content coverage) have been earmarked for subsequent development phases. Their feedback has enabled us to validate or refine each core assumption, identify system strengths, and identify targeted enhancements for the next development cycle.

ASC Data Reliability & Accessibility

The Officers successfully retrieved enrolment figures, facilities counts and teacher statistics from the embedded 2022 ASC dataset throughout Weeks 2–4. Although the year of the data was noted, every officer confirmed that the figures matched their prior knowledge and paper records. Once cluster-wide access was enabled (resolving Week 1's "allocated schools only" issue, see Assumption 2), retrieval times fell sharply and SQAOs confidently used data.

> **Assumption 1:** ASC is reliable, up-to-date, and accessible for use. Valid – data are accurate and accessible but and have benefited from a live ASC refresh in future iterations.

Accuracy of SQAO-to-Cluster Assignments

During Week 1, SQAOs reported that the AI tool failed to retrieve data for many of their schools. Investigation revealed that two different versions of the school-to-SQAO allocation list were in circulation—one integrated into the tool and another actively maintained by officers in the field. As a result, the tool would only respond to queries about schools "officially" allocated in its cluster, leaving out others that SQAOs supervised. This discrepancy not only caused confusion but also significantly constrained the tool's usefulness. In response, the development team temporarily granted each officer access to all district schools, removing the allocation filter. With this broader access in place, engagement increased immediately and steadily over the following weeks. This shows the important of the SQAO management system for consistent allocation and management of schools.

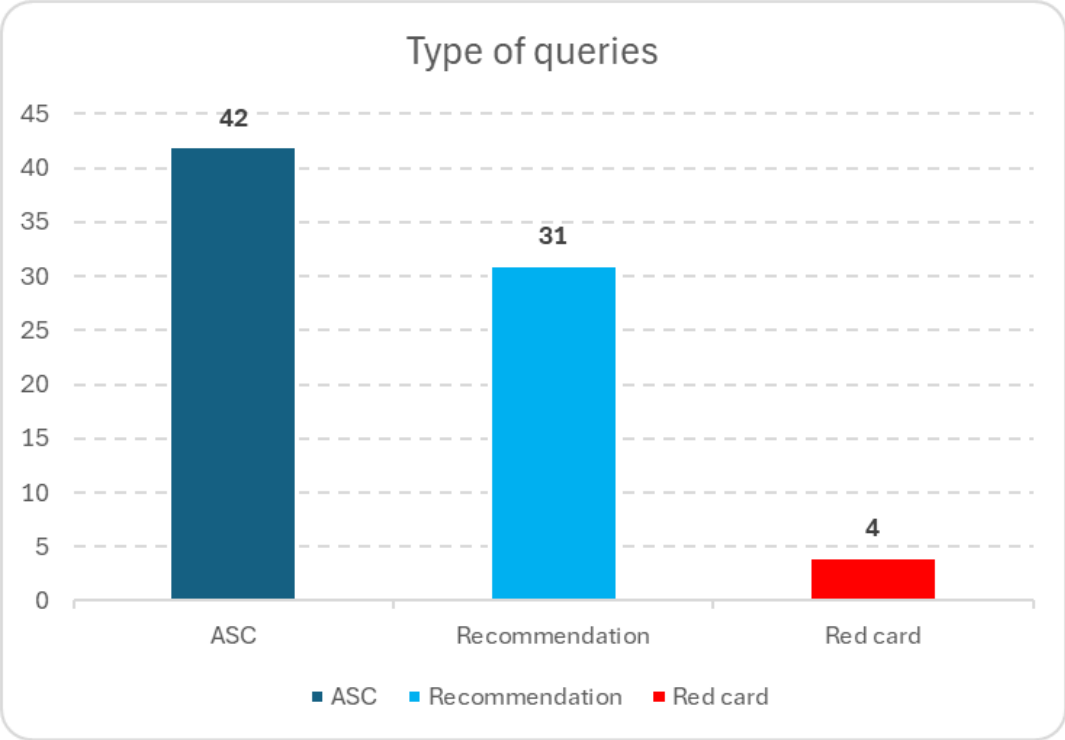
Assumption 2: List of SQAOs assignments to clusters is accurate. Partly validated –a dynamic sync with live assignment data is needed to prevent future access gaps. This can be done when the SQAO management system is in place.

Relevance of Chatbot Content

Usage logs show that the volume of queries grew steadily over the four weeks, with most requests focused on ASC data—enrolment figures, facility counts and teacher statistics. Focus group discussions (FGDs) revealed that SQAOs used these data before visits and at the same time, officers increasingly sought context-specific recommendations to address issues they observed—ranging from school management to gender-based violence protocols (see Figure 1). These responses, drawn directly from tagged MBSSE policy documents and supervision guidelines, consistently aligned with national standards and proved immediately applicable in the field. The officers' additional requests for WAESC and Teaching Service Commission data, as well as policy documents like the 2010 White Paper, indicate that while the content engine is strong, its utility will be further enhanced by broadening the document corpus.

Assumption 3: The chatbot content remains up to date with national policies and relevant to SQAOs' needs. Valid – chatbot content is current and relevant but expanding its policy and data sources will increase its value.

Figure 1. Number of queries by type and topic



Type/topic		Num
ASC	School profile	16
	Enrolment	10
	List of schools	4
	Health and hygiene	4
	Infrastructure	4
	PTR	2
	Subsdies	1
	PIN coded teachers	1
Recommendation	SRGBV	14
	School management	8
	BOG	4
	Disciplinary actions	2
	Hotlines	1
	Teaching and learning	1
	Pregnant girls	1

Excludes questions in the training day and focus groups days

Mobile Access & Connectivity

All five testers used personal smartphones on WhatsApp, confirming widespread device readiness. Occasional network delays and failed message deliveries in low-connectivity zones underscored a need for offline caching (a feature slated for the next phase). Nevertheless, no officer was unable to complete their scheduled tasks due to device or connectivity issues.

Assumption 4: SQAOs have mobile phone access and internet connectivity. Largely validated – SQAOs have the hardware and network access to use the tool, but an offline mode would improve reliability in remote areas.

Feedback Mechanism

Testers issued four "red card" flags for missing-school errors and data mismatches. Each report triggered a rapid developer response, with fixes deployed before the next FGD. Officers complimented the immediacy and ease of the feedback loop, which encouraged their trust in the tool.

Assumption 5: SQAOs have the capacity to identify inconsistent responses and effectively use the feedback mechanism. Fully validated – SQAOs can identify and report inconsistencies effectively, and the mechanism functions as intended.

Participation & Engagement in User Testing

All five SQAOs attended the initial four-hour training session and maintained 100 percent attendance across the four, weekly two-hour FGDs. Between sessions, each officer engaged independently with the chatbot—submitting an average of 6 queries at the end of the testing period—and actively used the "red card" feature to flag errors. During FGDs, they provided detailed, actionable feedback on usability, content gaps and feature requests. Even when technical delays arose (e.g. connectivity delays in Week 2), officers remained committed to testing and discussion, ensuring that every planned topic was covered.

Assumption 6: SQAOs are able to attend in-person user testing sessions and have engaged enough with the chatbot to provide meaningful feedback. Fully validated – SQAOs were able to attend in-person sessions and engage deeply with the AI tool, yielding rich insights for improvement.

Value and Impact

Perhaps the most important outcome of the test was the shift in how officers used the AI tool. SQAOs began to trust the AI tool as a source of practical, context-specific guidance. They used it not only to retrieve data but also to guide conversations with school leaders and shape recommendations.

This shift suggests the possibility of a broader transformation that should be investigated further: the AI tool seemed to become more than a technical tool. It became a professional companion—supporting fieldwork, which can strengthen visit targeting, and may improve the quality of visits, and helping officers respond confidently to complex challenges.

Feedback and Future Development

In the final group session, all five officers expressed strong support for the AI tool and shared specific ideas for its development. They requested updated ASC data (which has now been addressed) and the increase of the library corpus.

They also suggested an offline version for use in schools with poor connectivity, better handling of school names and abbreviations, and integration of geo-location data to enable accurate identification of nearby schools. Additional requests included the ability to prioritise visits based on school needs and distance, and access to previous visit history to support effectiveness of follow-up visits both in terms of planning and the actual visits.

This user-feedback exercise corresponds to Phase 1 in the "Phased Approach with Gateway Decision Points" diagram (Development & Internal/Lab Testing). The insights and validated assumptions documented here will directly inform Phase 2 (Pilot Rollout), in which we will:

- Prioritise feature enhancements (live data sync and expanded corpus)
- Conduct a small-scale pilot across a wider SQAO cohort
- Refine training materials and support workflows based on real-world use

Successful completion of Phase 2 will trigger our gateway decision, determining readiness for Phase 3 (National Scale-Up). By anchoring each development milestone to the diagrammatic roadmap, we ensure that every enhancement is guided by field-tested evidence and aligned with broader programme objectives.

Short-term refinements

- Enhance natural-language deconstructing and school-name recognition to reduce lookup errors.
- Extend the content corpus with WAEC, Teaching Service Commission data and key policy documents.

Medium-term integrations

- Sync dynamically with the SQAO Management System roster to eliminate allocation mismatches.
- During the scale-up phase, incorporate structured, scenario-based training into standard capacity-building sessions to reinforce hands-on learning and peer sharing.

Long-term capabilities

- Embed routing and visit-planning modules, leveraging GIS and distance calculations.
- Integrate historical tracking via the SQA Form to monitor progress across successive visits.

Conclusion

The four-week pilot in Western Area Rural demonstrated that the SQAO AI Support Tool is both valued and effective, even in its early incarnation. Officers moved from basic data retrieval to leveraging the chatbot as a professional companion—applying on-the-spot recommendations, flagging issues in real time, and influencing school-level decision making. By addressing the identified refinements and rolling out structured, collaborative training, the tool is well positioned to scale and transform school supervision across Sierra Leone.

Appendix: Theory of Change

The Theory of Change for the SQAO AI Support Tool shows how an AI-driven, data-informed chatbot can change the school quality assurance from a compliance exercise into a performance-focused practice. This begins with strengthened monitoring, supervision and support by officers. When SQAOs enter schools equipped with timely, relevant data and context-specific guidance, they can target their visits more effectively. That targeted support drives improvements in teaching practices, school management and resource allocation, which in turn enhances teacher effectiveness and ultimately yields better learning outcomes for students.

First, the tool increases both the frequency and quality of SQAO support by making school-level data continuously accessible. Rather than relying on outdated spreadsheets or manual lookups, officers can query the latest ASC metrics and cluster assignments directly in WhatsApp. This capability enables them to prioritise schools with the greatest needs, schedule more visits in areas of under-performance, and arrive on site with clear focus areas identified in advance. By reducing the time spent gathering data (or by getting it to them at all), SQAOs devote more of their limited visit time to observation, mentoring and follow-up.

Second, the AI tool strengthens SQAO capacity to deliver practical, actionable recommendations on the spot. Leveraging a Retrieval-Augmented Generation engine, the chatbot synthesises relevant quotes from MBSSE policy documents, supervision guidelines and past visit reports to generate tailored advice. Whether an officer needs classroom management techniques or guidance on gender-based violence protocols, the tool delivers bite-sized, policy-aligned suggestions that can be shared directly with teachers and headteachers. A built-in “red card” feedback feature further ensures continuous improvement—officers flag inaccuracies or missing data, and developers refine the system in near real time to maintain trust and relevance.

Together, these activities—data prioritisation, pre-visit insights, context-specific guidance and rapid feedback loops—produce measurable outputs such as increased visit numbers, richer discussion during school visits, and a growing volume of improvement-oriented queries. Over time, these outputs are expected to translate into stronger school performance and, ultimately, higher teacher quality and enhanced learning outcomes across Sierra Leone’s secondary schools.

Following the completion of the core system development activities, we embarked on a structured user-feedback phase to validate five critical assumptions underpinning the SQAO AI Support Tool. In the preceding months (see Phase 1 in the “Phased Approach with Gateway Decision Points” diagram), the project team built the backbone of the chatbot by implementing ASC-based query and response functionality, rigorously testing them against the 2022 ASC dataset, and adjusted school-to-SQAO allocations to ensure each officer receives data relevant to their assigned cluster. All responses are powered by a Retrieval-Augmented Generation (RAG) engine that draws on tagged and summarized MBSSE policy documents and monitoring guidelines, ensuring recommendations remain aligned with national standards. Our WhatsApp integration has been fully validated end-to-end, and a “red card” feedback mechanism has been embedded to capture and correct any inconsistent or erroneous replies in real time.

Phased Approach with Gateway Decision Points