KeNAWRUA Report.

Project Activity	Citizen Science Data Integration for SDG indicator 6.3.2
Project Aim	Integration of WRUA data gathering and citizen science water quality monitoring for basin management and SDG6.3.2 reporting in Kenya
Date of agreement	1st May 2024
Term of Agreement	30th September 2024

Kenya National Association of Water Resources Users Association (KeNAWRUA) is a national premium umbrella body organization bringing together 756 Water Resources Users Associations (WRUAs) working in the 6 Basin Areas in Kenya. Our mission is to enhance sustainable management of the water resources in Kenya. KeNAWRUA's mission, deeply rooted in collaborative and participatory approaches, revolves around mobilizing and uniting diverse WRUAs. These Associations, spread across the country, represent a wide range of communities directly impacted by water-related issues. KeNAWRUA's role extends beyond mere coordination; it acts as a voice and a catalyst for change, advocating for policies and practices that ensure equitable and sustainable water use and management in Kenya.

The involvement of KeNAWRUA in the pilot study of the project funded by the World Water Quality Alliance (WWQA) through Freshwater watch (FWW) for the integration of WRUA data gathering and citizen science water quality monitoring represents a significant step towards advancing basin management and achieving Sustainable Development Goal 6.3.2 reporting in Kenya. By collaborating with WRUAs, KeNAWRUA had the opportunity to leverage local knowledge and expertise in collecting vital data on water quality across different basins in Kenya. This collaboration not only strengthened community engagement in water resource management but also enhanced the accuracy and comprehensiveness of data collection efforts. Through this joint initiative, WRUAs played a crucial role in promoting sustainable water management practices, contributing to informed decision-making, and ultimately driving progress towards achieving SDG 6.3.2 targets in Kenya.

The Problem.

Water Resource Users Associations (WRUAs) faced significant challenges due to the collection of water quality data primarily stored on paper, which made the information vulnerable to damage and loss. The physical nature of paper records meant that they were susceptible to environmental factors such as misplacement, moisture, flooding, and

deterioration over time, rendering valuable data increasingly unreliable or entirely inaccessible. Additionally, the manual nature of data collection and storage hindered timely access and analysis, preventing WRUAs from responding promptly to water quality issues and making informed decisions regarding resource management. This reliance on paper records not only compromised the integrity of the data but also posed significant barriers to effective monitoring and reporting, ultimately undermining the WRUAs' ability to advocate for sustainable water resource practices and safeguard community health. Transitioning to digital data management systems emerged as a critical need to enhance data protection, accessibility, and overall effectiveness in managing water quality resources.

Situation then,

The WRUA data gathering initiative, which commenced in 2012, aimed to enhance understanding and monitoring of water resources in Kenya. However, the absence of a centralized data management system coupled with limited quality control measures has led to significant challenges, including data loss. The fragmented data storage and management processes within WRUAs have hindered effective analysis, decision-making, and planning for sustainable water resource management. To address these issues and prevent further data loss, KeNAWRUA prioritized the establishment of a centralized data management system, implemented robust quality control mechanisms, and invested in capacity-building initiatives to ensure accurate, reliable, and accessible data for informed decision-making and sustainable water governance.

The implementation of a centralized data gathering platform within WRUAs, equipped with robust quality control measures and efficient data management systems, is paramount for optimizing water resource monitoring and management efforts. By establishing a centralized data repository, WRUAs can streamline data collection processes, enhance data accuracy and consistency, and facilitate seamless sharing and collaboration among stakeholders. Quality control mechanisms, such as regular data validation and verification procedures, will ensure the reliability and integrity of the collected data, enabling evidence-based decision-making and informed policy formulation. Additionally, investing in capacity-building initiatives to empower WRUA members in data management techniques and tools will further strengthen the effectiveness and sustainability of the centralized data gathering platform.

Developing a site-specific data acquisition app tailored for individual WRUAs in Kenya holds immense potential in enhancing the efficiency and effectiveness of water resource management at the local level. By providing WRUA members with a user-friendly, intuitive app designed to collect and transmit accurate data directly from the field, this innovative tool has revolutionize data collection processes, improved data quality, and streamlined reporting procedures. With features such as GPS integration for precise location tracking, customizable data entry fields to capture relevant information, and offline capabilities to accommodate areas with limited connectivity, the app have had the capacity to empower WRUA members in real-time decision-making and monitoring of water resources. Moreover, investing in training and support services to ensure the successful adoption and utilization of the app was

crucial in enabling WRUAs to harness the full potential of this technology for sustainable water resource management practices.

The identification of river health issues through citizen science monitoring by WRUAs have had a direct impact on enhancing community involvement in water resource management and promoting proactive measures for the protection and restoration of critical water bodies.

Achievements.

The Kenya National Water Resources Users Association (NWRUA) has successfully leveraged funding from the World Water Quality Alliance (WWQA) to develop a comprehensive Excel database for inputting all water quality data collected by Water Resources User Associations (WRUAs) since 2012. This collaborative effort has resulted in the successful integration of data from 45 WRUAs, facilitating better organization, analysis, and accessibility of critical water quality information. The new database not only enhances the integrity and reliability of the data but also empowers WRUAs to make informed decisions regarding water resource management and address water quality challenges more effectively. This initiative marks a significant step toward improving data-driven approaches in the management of Kenya's water resources, ultimately contributing to the sustainability and health of freshwater ecosystems across the country.

Freshwater Watch has provided invaluable support in the development of a mobile application designed to streamline the transfer of water quality data into a centralized digital platform. This innovative app aims to enhance the efficiency and accuracy of data collection by enabling Water Resource Users Associations (WRUAs) to seamlessly input, access, and analyze water quality information from various sources in real time. By consolidating disparate data sets into a single platform, the app not only improves data management but also fosters collaboration among stakeholders, ensuring that local communities, researchers, and policymakers can make informed decisions based on comprehensive and up-to-date water quality assessments. This initiative exemplifies a commitment to harnessing technology for sustainable water resource management, ultimately promoting better water quality outcomes and environmental stewardship.

Freshwater Watch has generously donated water quality measuring kits to nine Water Resources User Associations operating in three basin areas in Kenya, empowering them to enhance their monitoring and management of local water quality.

Next Steps.

The integration of Water Resource Users Associations (WRUAs) and Freshwater Watch measurements represents a significant advancement in community-based water management. By combining the localized knowledge and governance structures of WRUAs with the rigorous scientific data provided by Freshwater Watch tools, stakeholders can create a comprehensive understanding of freshwater ecosystems. WRUAs, which consist of local water users managing shared resources, can utilize Freshwater Watch's standardized

monitoring protocols to assess water quality and biodiversity. This integration fosters greater collaboration among community members, enhances transparency in water resource management, and facilitates evidence-based decision-making. Furthermore, real-time data collection can empower WRUAs to identify pollution sources, assess the impact of land use changes, and implement conservation strategies more effectively, ultimately leading to healthier ecosystems and improved water security for local communities.

The collaboration between the Water Resources Authority (WRA) and Water Resource Users Associations (WRUAs) is pivotal in supporting effective basin management strategies. By consolidating data from WRUAs, which capture localized insights on water usage, quality, and community needs, the WRA can gain a comprehensive understanding of the diverse dynamics within specific basins. This data-driven approach allows for more informed decision-making, as the WRA can identify trends, anticipate challenges, and develop targeted interventions tailored to the unique characteristics of each watershed. Moreover, the integration of WRUA data enhanced stakeholder engagement, fostering a sense of ownership among local communities and promoting sustainable water resource practices. Ultimately, this collaboration not only aided in the optimization of resource allocation but also contributed to the overall health and resilience of aquatic ecosystems, ensuring the sustainable management of water resources for future generations.

The integration of Water Resources Authority data with WRUA insights and Freshwater Watch measurements significantly enhanced the accuracy and comprehensiveness of SDG 6.3.2 reporting, enabled more effective monitoring and management of water quality and ecosystem health in freshwater resources in Kenya.

KeNAWRUA plays a pivotal role in fostering sustainable water management in the country, making it essential to develop a citizen science fact sheet for effective water quality monitoring. Such a fact sheet would serve as a vital tool not only for empowering citizens to actively participate in the assessment of freshwater sources but also for influencing policy-making processes by providing evidence-based data about water quality and accessibility issues. By presenting information in an accessible format, the fact sheet can enhance public awareness and engagement, galvanize communities to hold duty bearers accountable for the management of water resources, and facilitate clear communication regarding the current status of freshwater sources. Ultimately, this initiative promotes transparency, encourages informed decision-making, and supports sustainable practices to safeguard Kenya’s precious water resources.

Lessons Learnt.

The integration of data gathering by Water Resources Users Associations (WRUAs) with citizen science water quality monitoring has provided valuable insights for basin management and the reporting of Sustainable Development Goal 6.3.2 in Kenya. Here are the key lessons learned:

Empowerment through Engagement: Involving local communities and WRUAs in water quality monitoring fosters greater awareness and a sense of stewardship over water resources, thereby enhancing their commitment to sustainable basin management.

Data Completeness and Accuracy: Collaborative efforts between WRA and WRUAs and community scientists can improve the geographic and temporal coverage of water quality data. Training community members in standardized data collection methods is essential for ensuring the accuracy and reliability of the information gathered.

Enhanced Decision-Making: The integration of diverse datasets from WRUAs provides a more comprehensive view of water quality, enabling better-informed decision-making for water resource management, policy formulation, and conservation strategies.

Strengthening Networks: Building strong relationships among WRUAs, local authorities, and community scientists enhances communication and facilitates the sharing of resources, expertise, and data, ultimately leading to more effective basin management.

Utilization of Technology: Employing digital tools and platforms for data collection, analysis, and reporting can streamline the monitoring process and improve accessibility. This technology-driven approach can also aid in real-time data sharing, attracting more stakeholders to participatory water management.

Alignment with National and Global Goals: Integrating citizen science data into the frameworks for reporting on SDG 6.3.2 underscores the importance of grassroots contributions to global water quality assessments, promoting accountability and support for local initiatives.

Adaptive Management: The dynamic nature of water resources necessitates an adaptive management approach. Continuous data collection from both WRUAs and community scientists allows for real-time adjustments in management strategies based on emerging trends and water quality issues.

Capacity Building: Ongoing training and capacity-building initiatives strengthen the skills of both WRUAs and community members in data collection, analysis, and interpretation, which enhances the overall quality of management strategies over time.