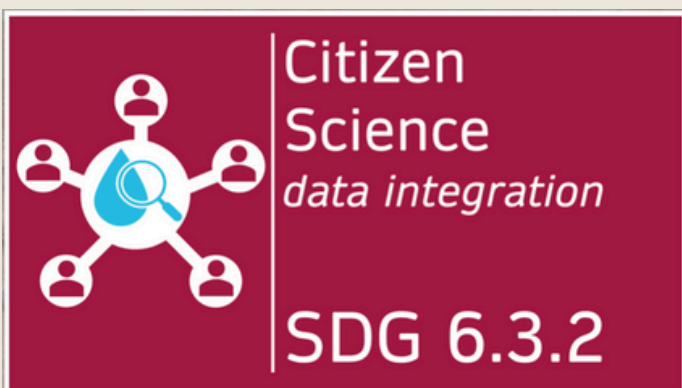


# COLLECTIVE DATA SHARING FOR GOOD AMBIENT WATER QUALITY



## Background

This Shared Statement is the resulting work of the Citizen Science Data Integration for SDG indicator 6.3.2 project, a cooperation by different citizen science programmes (MiniSASS, Drinkable Rivers, FreshwaterWatch) and national organizations (Kenya, South-Africa) responsible for SDG 6.3.2 reporting. The project contributes to the Citizen Science for SDG 6.3.2 workstream and the Citizen Engagement, Data to Action and Development programme of long-term citizen science pillars as part of the seven principal pillars of the WWQA. This project is an essential component of a more ambitious vision of the Citizen Science for SDG 6.3.2 workstream. This vision is that citizen science derived data are routinely used for national and international water quality reporting frameworks such as the SDGs, and through this process, water quality is improved and protected through community mobilization and engagement. In addition to generating these crucial data, citizen science engagements in this way will also raise awareness, provide education opportunities, and test innovative financing models. The project contributes by focusing on identifying barriers and developing solutions to known data mobilization and integration issues. The geographic focus is on Kenya and South Africa where there are active citizen scientist initiatives in place, but the scope to upscale is global. The Shared Statement has been formed and finalized during the final workshop of the project, 'Collective Data Sharing for Good Ambient Water Quality', and was hosted by the Drinkable Rivers Foundation. The workshop took place on September 3, 2024, 9:30 - 13:00 CEST.



## Towards Data Integration

Our goal was to advance the utilization of diverse water quality data sources by initiating (big) data analytics and combining different datasets for valuable insights. The workshop presented findings from the project activities in Kenya and South Africa, focusing on establishing a global pathway for data collection and sharing to improve SDG indicator 6.3.2 reporting. Participants were directly invited and involved because of their expertise, role or direct involvement in this topic. Together we addressed opportunities and challenges in scaling efforts to other countries, including data sharing, interoperability, and sustainability. The workshop facilitated discussions among participants to generate insights for collectively sharing data for the promotion and restoration of healthy freshwater systems. We have collected all results in this Shared Statement, which shows the pathway to future worldwide collaboration on integrating water quality data sets, citizen science, and others, to reach target SDG6.3; good ambient water quality worldwide.

## Water Quality Data

Water quality is linked to all aspects of the triple planetary crisis. Ensuring that good water quality exists in our rivers, lakes and aquifers is essential for sustainable development and meeting other critical goals such as reducing global health costs and disease burdens associated with poor water, sanitation, and hygiene, or restoring and conserving healthy ecosystems. However, water quality is under threat from multiple sources. Through UNEP's implementation of SDG indicator 6.3.2 (good ambient water quality), we know that many national monitoring programmes are inadequate to understand the extent and severity of these threats, or to answer basic questions about spatial and temporal water quality trends. Even where water quality data are available, they are often inaccessible or not provided in a format easily understandable by everyone. This lack of actionable information puts millions of people at risk because the current and future health of the freshwater ecosystems they rely upon is unknown. Water quality is linked to all aspects of the triple planetary crisis. Ensuring that good water quality exists in our rivers, lakes and aquifers is essential for sustainable development and meeting other critical goals such as reducing global health costs and disease burdens associated with poor water, sanitation, and hygiene, or restoring and conserving healthy ecosystems. However, water quality is under threat from multiple sources. Through UNEP's implementation of SDG indicator 6.3.2 (good ambient water quality), we know that many national monitoring programmes are inadequate to understand the extent and severity of these threats, or to answer basic questions about spatial and temporal water quality trends. Even where water quality data are available, they are often inaccessible or not provided in a format easily understandable by everyone. This lack of actionable information puts millions of people at risk because the current and future health of the freshwater ecosystems they rely upon is unknown.



## Goal and Value of Integrating data

Citizen Science data collection, if integrated with each other and national and international existing water quality data sets, has the potential to; strengthen communities by providing citizen science tools as well as integrated datasets, data-analyses, data visualisation and identify local priorities, gain valuable insights for local priorities on how to improve the water body; and map water quality in streams and rivers, help transparent water quality reporting for SDG Indicator 6.3.2, to in the end achieve SDG Target 6.3 to identify priorities for actions and opportunities for collaboration for water health improvements.

Still, integration of water quality data is not a standard policy nor practice. **What are we missing by not integrating data?** We discussed what we aim to achieve by integrating water quality datasets on a general scale, of which citizen science data sets are an important part, and who benefits from this approach. We identified the various stakeholders who benefit from integrated data and understand the value proposition for different user groups, including local communities, policymakers, researchers, private sector and international organizations. We identified why integration of data of different types and from diverse sources is valuable, what concrete improvements, knowledge or understanding is lacking now.



## Building Trust in Data Sharing

One of the known data mobilization and integration issues, is the lack of trust in sharing data. So, **how can trust be built in sharing citizen science and non-CS water quality data?**

We focussed on the elements necessary to build and maintain trust among data providers to share their data and among data users to meaningfully use the data. We discussed potential barriers to trust and strategies to overcome these challenges, including shared vision/mission, increased transparency, data quality, privacy concerns, and collaborative frameworks. We learned from other sectors like air quality and ecology where data sharing is more common, to understand how to incorporate their lessons into data sharing for water quality. The discussion reflected the needs to creating a trusted data-sharing ecosystem that ensures the reliable and trustworthy data exchange required for water quality data to become actionable.



## Governance and upscaling

**If and when we can overcome the barriers and integration issues, what then are the design principles (set of guidelines) for data integration?**

To be able to upscale and bring together more data in the future, there is a need to realize that there must be made resources available to create successful data management within organisations. In this session, we explored the governance structures required for successful data management and upscaling. We mapped out the roles and responsibilities of various stakeholders, discussed design considerations for governance frameworks, and explored ways to expand our efforts in the few countries where CS data are used by government to other region or countries. This also included financial needs to ensure such plans. As a starting point, results from the paper 'Empowering citizen scientists to improve water quality: from monitoring to actions' were used.



## Requirements for data integration

**What are the (technical) requirements for enabling data integration of citizen science water quality data?**

Here we focussed on the aspects necessary for effective data integration and utilization. We discussed the specific technical requirements needed to support data collection, analysis, sharing, and interoperability. Topics included data standards, infrastructure, tools, and technologies required to handle large datasets from diverse sources. Our objective in this session was to identify technical solutions and best practices that enable seamless data integration, reflecting our aim to combine different datasets for valuable insights.

# Shared statement

We, the undersigned, stand behind these 4 shared statements. This Shared Statement aims to bring sectors and organisations together to enable effective data integration to reach target SDG6.3 and beyond. Through a newly created leadership group we will address the below statements work towards integration of citizen science and other water quality data, in order to reach good ambient water quality worldwide. Please find the undersigned and additional findings in the addendum of this Shared Statement.

## Statement 1

Because [OPPORTUNITY], which results into [ASPIRATIONS], we will work towards [ACTION: WHERE, WHO, WHAT, or HOW]. For this we need [RESOURCES].

## Statement 2

Because [OPPORTUNITY], which results into [ASPIRATIONS], we will work towards [ACTION: WHERE, WHO, WHAT, or HOW]. For this we need [RESOURCES].

## Statement 3

Because [OPPORTUNITY], which results into [ASPIRATIONS], we will work towards [ACTION: WHERE, WHO, WHAT, or HOW]. For this we need [RESOURCES].

## Statement 4

Because [OPPORTUNITY], which results into [ASPIRATIONS], we will work towards [ACTION: WHERE, WHO, WHAT, or HOW]. For this we need [RESOURCES].

### Addendum

1. List of undersigned organisations to this statement
2. Additional findings during the workshop
3. Additional findings during the project



# WWQA

World Water Quality Alliance