WSH Data Labs
DATA SYSTEMS FOR SANITATION SERVICE DELIVERY

AN INITIATIVE BY
Dev-Afrique

Webinar #10

Sanitation Data System Tools Series

WSH Data Labs: Insights to Action

AGENDA

01   Overview of the Public Data Systems Tools Project and Focused Webinar Series

02   Overview of the Transition to WSH Data Labs

03   Presentation on WSH Data Labs Outputs

04   Break

05   Question and Answer Session

06   Next Steps

07   Closing Remarks

End Of Agenda

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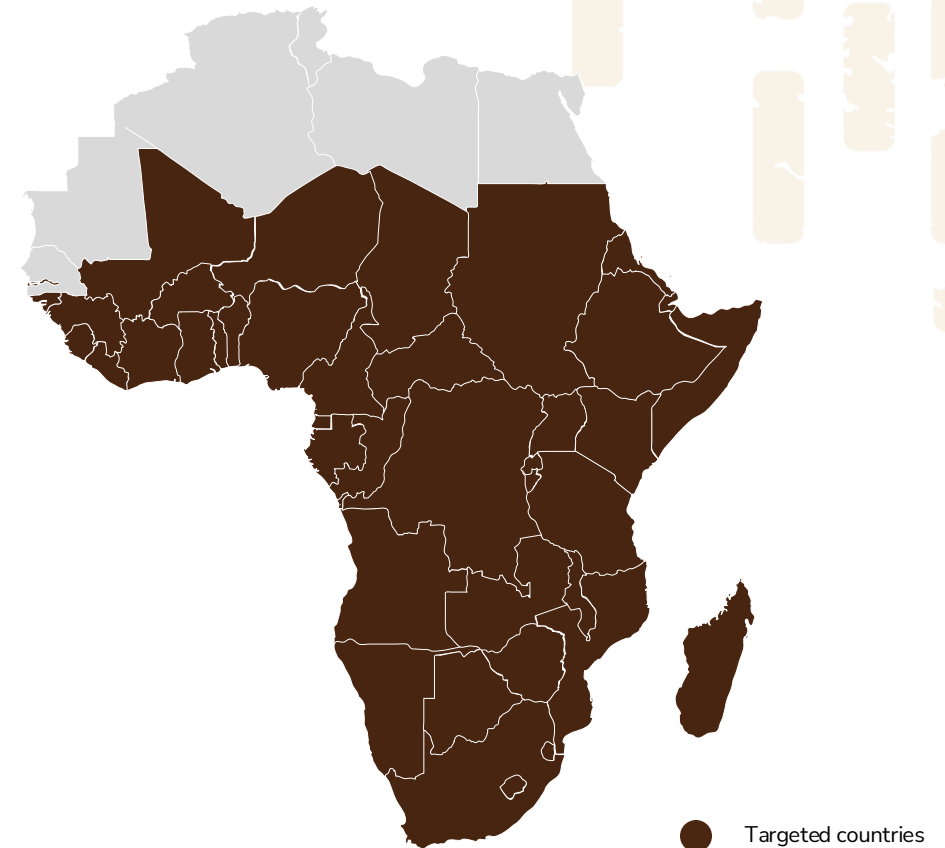AN INITIATIVE BY
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WELCOME

Webinar: WSH Data Labs – Insights to Action

Dev-Afrique commenced the implementation of a Sanitation Data Systems Strengthening project in sub-Saharan Africa

Project goal: To improve public data systems for effective decision-making and performance management for sanitation service delivery at municipal and utility levels

Dev-Afrique contributions:

- **Improve understanding of data systems strengthening best practices from non-WSH data systems** like Health.

- **Improve understanding of non-sewered sanitation data systems** at municipals and utilities in sub-Saharan Africa.

- **Support developing and piloting the WSH data systems maturity index** developed by ESAWAS and Athena.

- **Landscape and develop an inventory of successful WSH tools** in South Asia and sub-Saharan Africa.

- **Provide technical support and facilitate cross-learning and insights sharing** on data systems best practices.

● Targeted countries

We have hosted webinars spotlighting WSH Data System Tools used within sub-Saharan Africa And South Asia

01
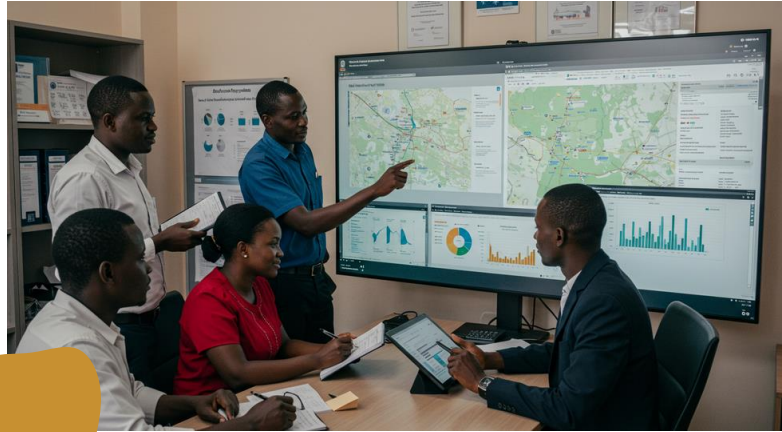
We aim to **promote shared learning and best practices and enhance the use of sanitation data systems** for performance management and service delivery within utilities and municipalities.

The webinar series targets WSH stakeholders across Africa, including regulators, utilities, and municipal authorities. It will provide an opportunity for WSH stakeholders to participate in cross-learning activities and explore opportunities to strengthen sanitation service delivery.

02

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Recap of the webinar series

Supported by sector partners like the **Eastern and Southern Africa Water and Sanitation (ESAWAS) Regulators Association** and the **Global Water Operators' Partnerships Alliance (GWOPA)**, the series addressed critical challenges—spotlighting tools and solutions designed to **close data gaps**, **tackle operational inefficiencies**, and **build sustainable, data-driven sanitation systems** capable of delivering real-world impact in Sub-Saharan Africa.

900+
PARTICIPANTS

40+
COUNTRIES

9 TOOLS
SPOTLIGHTED

Dev-Afrique's WSH project transitioned to a more sustainable program called the WSH Data Labs

Mission: To enhance public data systems, drive informed decision-making, optimize performance management, and improve sanitation service delivery across sub-Saharan Africa with practical, scalable, and impactful data solutions.

Co-create data systems strengthening solutions

Champion data systems strengthening best practices

Promote data systems knowledge exchange

WEBINAR #10

WSH Data Labs:
Insights to Action

Exclusive Insights: Learn about findings from the latest sub-Saharan NSS data systems report, explore the data systems dashboard, and learn about the Terms of Reference for utility and municipality support.

Strategic Networking: Connect with peers and industry leaders to explore ways to strengthen sanitation data systems.

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Our Presenters

Shuko Musemangezhi

Associate Principal

MODERATOR

Grace Wambui

Advisor

Nnamaka Ojogbo

Associate Consultant

Kapanda Kapanda

Advisor

SPEAKERS

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Non-Sewered Sanitation Data Systems in Sub-Saharan Africa: Status, Challenges, and Recommendations

Bridging Gaps, Unlocking Opportunities, and Driving Impact

Grace Wambui

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● Targeted countries

Why NSS Data Systems Matter

Robust Data Systems

Inform Policy & Planning: Enable evidence-based decision-making for sanitation investments.

Improve Service Delivery: Enhance monitoring of access, safety, and inclusivity.

**Support Climate Resilience:** Track the impact of climate change on sanitation systems.

Drive Accountability: Strengthen regulatory frameworks and performance monitoring

Global Reporting

SDG	Linkage with sanitation
Clean Water & Sanitation	Tracks access to safely managed sanitation, faecal sludge management, and hygiene
Good Health & Well-being	Links sanitation data to disease surveillance, antimicrobial resistance, and public health
Sustainable Cities	Supports urban sanitation planning, informal settlement upgrades, and waste management
Climate Action	Monitors resilience of sanitation services to climate shocks and extreme weather
Gender Equality	Captures gender-disaggregated sanitation access data for policy action

Regulatory Demands
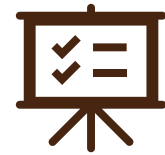
Utility Goals

Why NSS Data Systems Matter

**46%**
Global NSS use

>80%
SSA NSS use

NSS data scarcity across SSA has led to a **lack of requisite data** needed **to improve service delivery**, **track performance**, **increase operational efficiency**, and build an **investment case for resource allocation**

Dev-Afrique, supported by the Gates Foundation, conducted a **landscape assessment of NSS data systems across utilities and municipalities** in 10 SSA countries **to illuminate existing challenges and enable the identification of best practices** that can guide interventions aimed at strengthening NSS data systems.

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Assessment Scope and Methodology
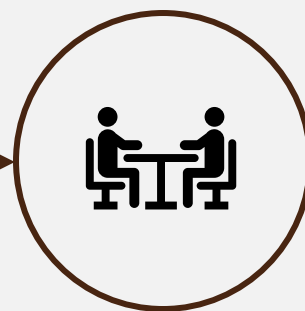
Qualitative case study using a participatory approach
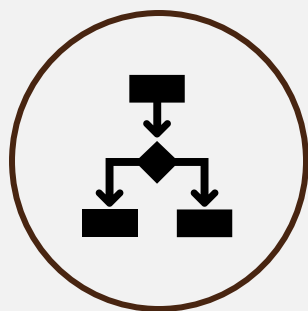
Adaptation of assessment framework

Dev-Afrique's 2022 Geospatial Value pipeline framework was adapted to map critical elements of a data system.

Desk based review

A review of online articles, conference proceedings, previous reports, and key stakeholder reports and websites.
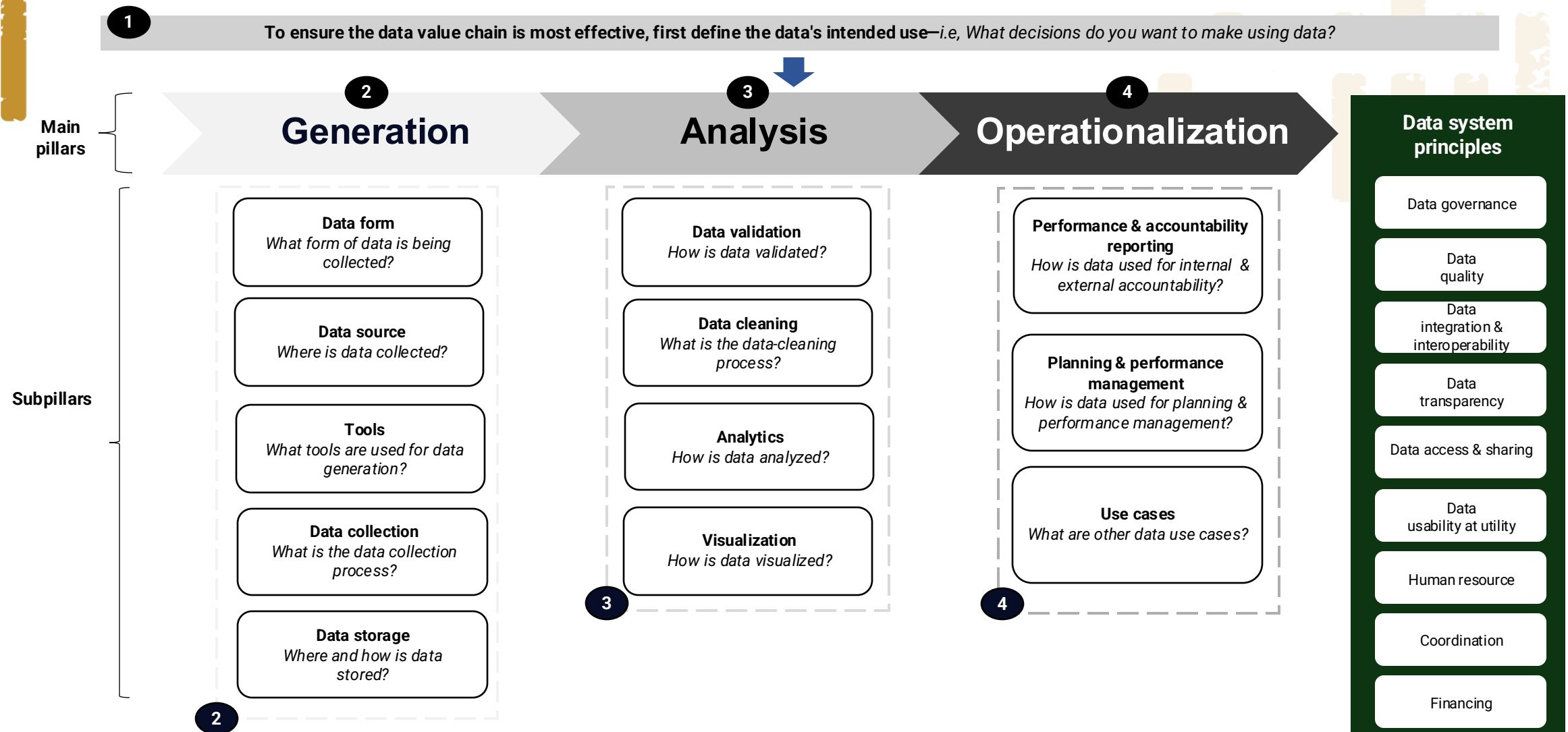
Stakeholder interviews & analysis

Dev-Afrique interviewed 28 stakeholders including governments, regulators, utilities, and municipalities from 10 countries.

Multi-layer review

The draft report underwent multiple layers of peer review to validate the findings.

Assessment Scope and Methodology

1 To ensure the data value chain is most effective, first define the data's intended use—*i.e, What decisions do you want to make using data?*

Main pillars

2 Generation → **3 Analysis** → **4 Operationalization**

Data system principles

Subpillars

Generation

Data form
What form of data is being collected?

Data source
Where is data collected?

Tools
What tools are used for data generation?

Data collection
What is the data collection process?

Data storage
Where and how is data stored?

2

Analysis

Data validation
How is data validated?

Data cleaning
What is the data-cleaning process?

Analytics
How is data analyzed?

Visualization
How is data visualized?

3

Operationalization

Performance & accountability reporting
How is data used for internal & external accountability?

Planning & performance management
How is data used for planning & performance management?

Use cases
What are other data use cases?

4

Data system principles

Data governance

Data quality

Data integration & interoperability

Data transparency

Data access & sharing

Data usability at utility

Human resource

Coordination

Financing

Assessment Scope and Methodology

Rwanda
Rwanda Utilities Regulatory Agency (RURA)
Water & Sanitation Corporation (WASAC)
Association of Emptiers in Rwanda

Nigeria
Office of Drainage Services
Lagos State Ministry of the Environment & Water
Resources (MoE Lagos)
Lagos State Water Regulatory Commission (LASWARCO)
Lagos State Wastewater Management Office (LSWMO)
Environmental Health Council of Nigeria

DRC
US. Agency for International Development

Zambia
Southern Water & Sanitation Company (SWSC)
Lusaka Water Supply & Sanitation Company (LWSC)
Western Water Supply & Sanitation Company (WWSC)
Ministry of Health (MoH)

South Africa
Department of Water & Sanitation (DWS)

Uganda
Water Utility Regulation Department (WURD)
Kampala Capital City Authority (KCCA)
National Water & Sewerage Corporation (NWSC)
Ministry of Health

Ethiopia
Ministry of Water & Energy

Kenya
Ministry of Water, Sanitation, & Irrigation (MoWSI)
Water Services Regulatory Board (WASREB)
Water & Sanitation Providers Association (WASPA)
Kisumu Water & Sanitation Company (KIWASCO)
Malindi Water & Sewerage Company (MAWASCO)
Nakuru Water & Sanitation Company (NAWASSCO)

Tanzania
Energy & Water Utilities Regulatory Authority (EWURA)

Malawi
Lilongwe City Council (LCC)
Lilongwe Water Board (LWB)
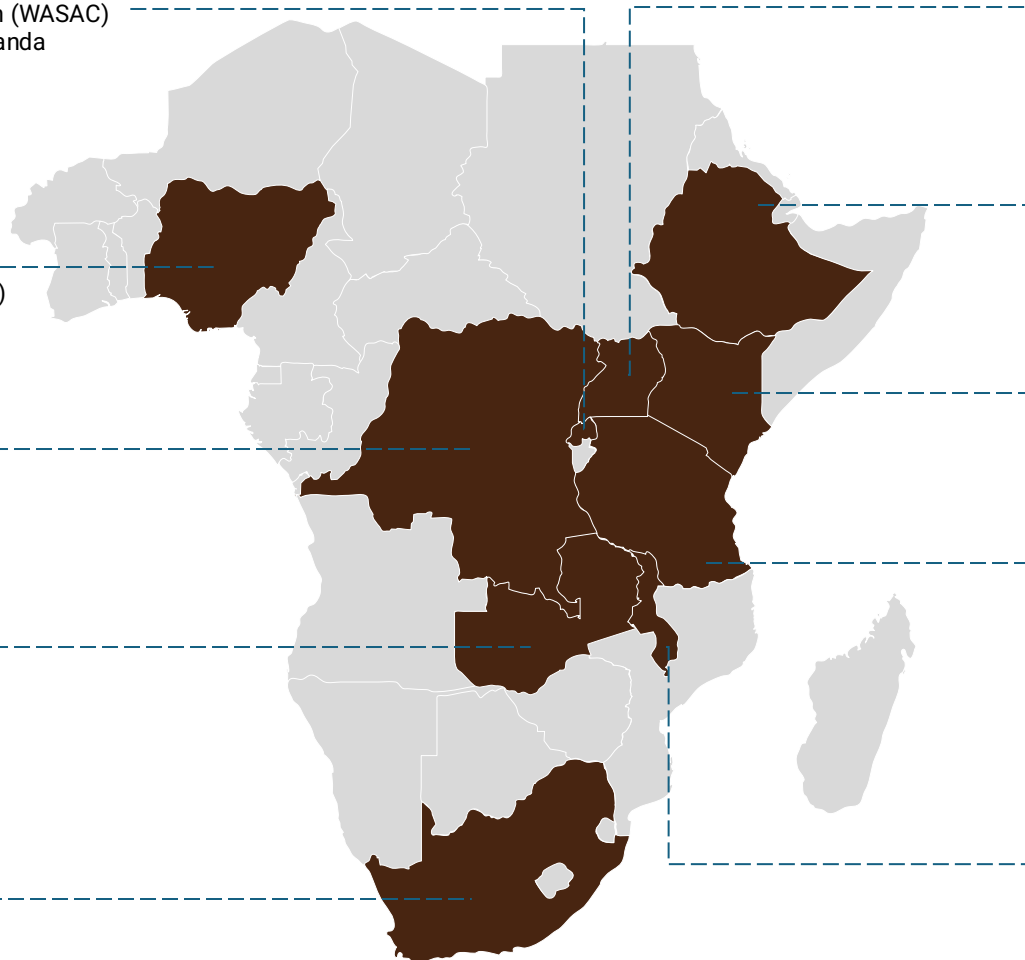
Landscape Status

Most utilities have not conducted baseline mapping

Most utilities use basic analytics approaches and excel for analysis.

NSS data is not fully mainstreamed into utility decision-making process

No existing standard operating procedures to guide data system principles

Non-sewered sanitation data systems in sub-Saharan Africa are weak and fragmented

Data Generation

Data Analysis

Data Operationalization

1 Infancy of NSS data collection methodologies

2 Lack of baseline NSS data

3 Inadequate political will and investments

4 Weak data capacities

5 Fragmentation of NSS data collection

6 Fragmented NSS data storage systems

7 Limited regulation and clear reporting frameworks

8 Poor data quality

9 Inadequate compliance monitoring

Non-sewered sanitation data systems in sub-Saharan Africa are weak and fragmented

Data Generation

Data Analysis

Data Operationalization

1 Lack of automated data validation tools

2 Project driven analysis

3 Insufficient skilled personnel

4 Absence of interoperable data systems

5 Under-utilization of GIS capabilities

6 Inaccurate GIS mapping

7 Financial constraints

8 Absence of NSS data systems guiding principles

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Non-sewered sanitation data systems in sub-Saharan Africa are weak and fragmented

Data Generation	Data Analysis	**Data Operationalization**

1 Fragmentation of NSS data

2 Limited funding

3 Political interference

4 Limited operationalization of NSS data

5 Inconsistent data quality

6 Limited MEL frameworks and dedicated units

Significant opportunities exist to drive impact for NSS data systems

1. **Standardization of Data Protocols (KPIs, guidelines, policies, regulation)**: Establishing uniform data collection and reporting standards can enhance the reliability and comparability of sanitation data.

2. **Investment in Digital Infrastructure**: Allocating resources towards digital tools and platforms can streamline data management processes.

3. **Capacity Building**: Training personnel in data management and analysis is crucial for the effective utilization of data systems.

4. **Integrated Monitoring Systems**: Developing centralized platforms that aggregate data from various sources can provide a comprehensive overview of sanitation services and inform policy decisions.

5. **Building a strong investment cases** for NSS data systems

2025 REPORT

DATA SYSTEMS FOR NON-SEWERED SANITATION IN SUB-SAHARAN AFRICA:

STATUS, CHALLENGES, AND RECOMMENDATIONS

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DATA SYSTEMS FOR SANITATION SERVICE DELIVERY

Dev-Afrique

DESCRIPTION

This report examines non-sewered sanitation (NSS) systems across Sub-Saharan Africa, highlighting key gaps, challenges, and practical solutions for utilities, municipalities, and regulators to strengthen data-driven service delivery, strengthen accountability, and attract investment.

DOWNLOAD THE REPORT

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- **Landscape and develop an inventory of successful WSH tools** in South Asia and sub-Saharan Africa.

- Provide technical support and facilitate cross-learning and insights sharing on data systems best practices.

Targeted countries

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WSH stakeholders often struggle to access and learn about existing data systems

Question: What is the first thought that comes to your mind when you want to optimize, adapt, or build data and operations management systems in the water and sanitation sector?

Your first thought: What tools exist that other utilities/municipalities or partners have found effective?

Where do you go to find this information?

- Make countless calls

- Spend hours sifting through reports and partner websites

- Try something new and hope for the best

- Attend workshops

- Travel across the continent

For too long, utilities, municipalities, and regulators have **operated in silos**, each **navigating their own data challenges**, **experimenting with different systems**, and **reinventing the wheel**—often without visibility into what others are doing.

Dev-Afrique launched an interactive dashboard to enable WSH stakeholders access, explore, and learn about existing data systems

Dashboard Goals

- **Increase Visibility:** Provide a centralized view of existing data and operations management systems.

- **Promote Shared Learning:** Enable stakeholders to learn from each other's experiences, avoiding duplication and inefficiencies.

- **Support Decision-Making:** Offer insights that help utilities, municipalities, and regulators select and implement the right solutions for their contexts.

- **Foster Collaboration:** Encourage synergies between regulators, service providers, and development partners.

This dashboard is not just a catalog—it's a living, dynamic resource that fosters visibility, knowledge exchange, and informed decision-making.

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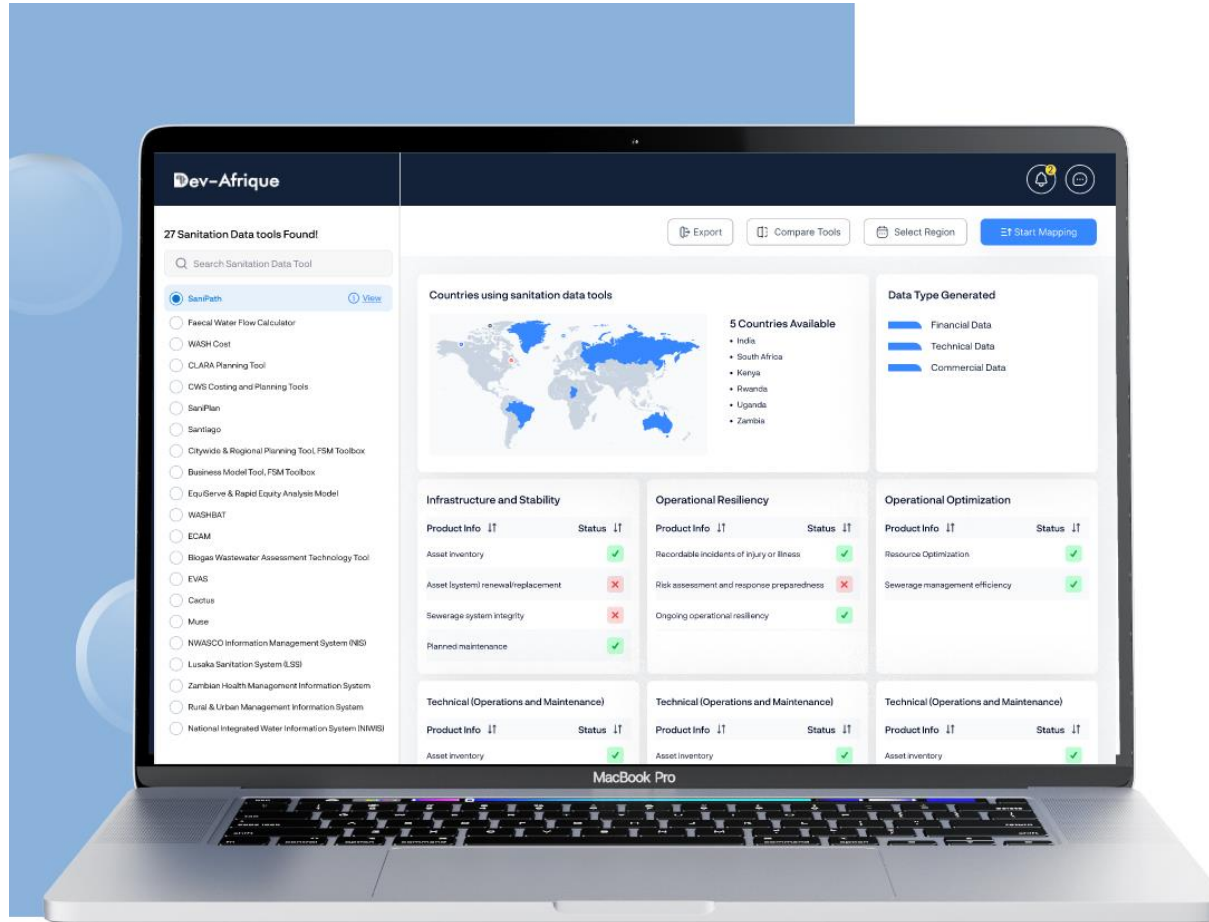
The dashboard streamlines the process of finding, comparing, and checking what core functionalities each data system covers

Dashboard Functionalities

- **Explore Tools:** Users can search for existing WSH data systems based on application level, region, country, tool purpose, sub-sector, and tool type.

- **Access Tool Details:** Users can have access to more in-depth information (tool description, contact information, learning resources, CSFs)

- **Compare Tools:** Users can compare two WSH data systems to identify which CSFs are being fulfilled.

- **Export Data:** Users can export data from their screens for further review and to build an investment case.

- **Add Data Systems:** Users can actively expand the knowledge base by requesting to add newly identified data systems.

- **Share Tool**: Users can easily share direct links to the tools across social media, email, and other online platforms to boost visibility and drive engagement.

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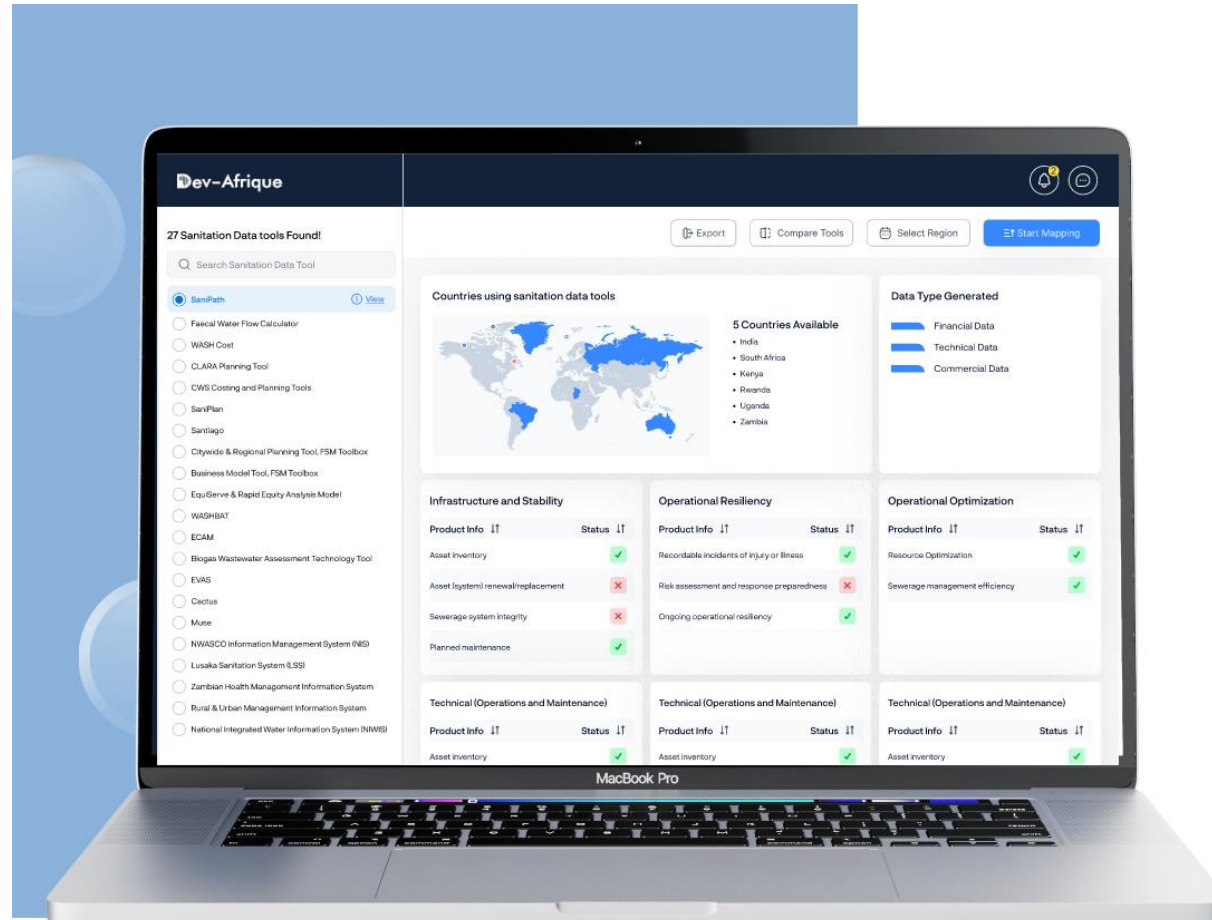
This dashboard is more than just a tool—it's a movement toward shared learning, collaboration, and innovation in the water and sanitation sector.

So, what can you do next?

- **Visit the ToolsMap:** Explore the dashboard, experiment with the filters, and discover what's possible. The address is **toolsmap.wshdatalabs.com**.

- **Contribute Your Knowledge:** If you have experience with a system that's not on the map, please share it with us.

- **Connect with the Community:** Reach out to the system owners and other users to learn from their experiences.

ACCESS THE DASHBOARD

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NSS Data Systems provide crucial insights into sanitation service delivery and help inform policy decisions, planning, and resource allocation

1

Non-sewered sanitation data systems in sub-Saharan Africa are weak and fragmented

1. Lack of automated data tools

2. Fragmented NSS data

3. Project driven data system efforts

4. Absence of interoperable data systems

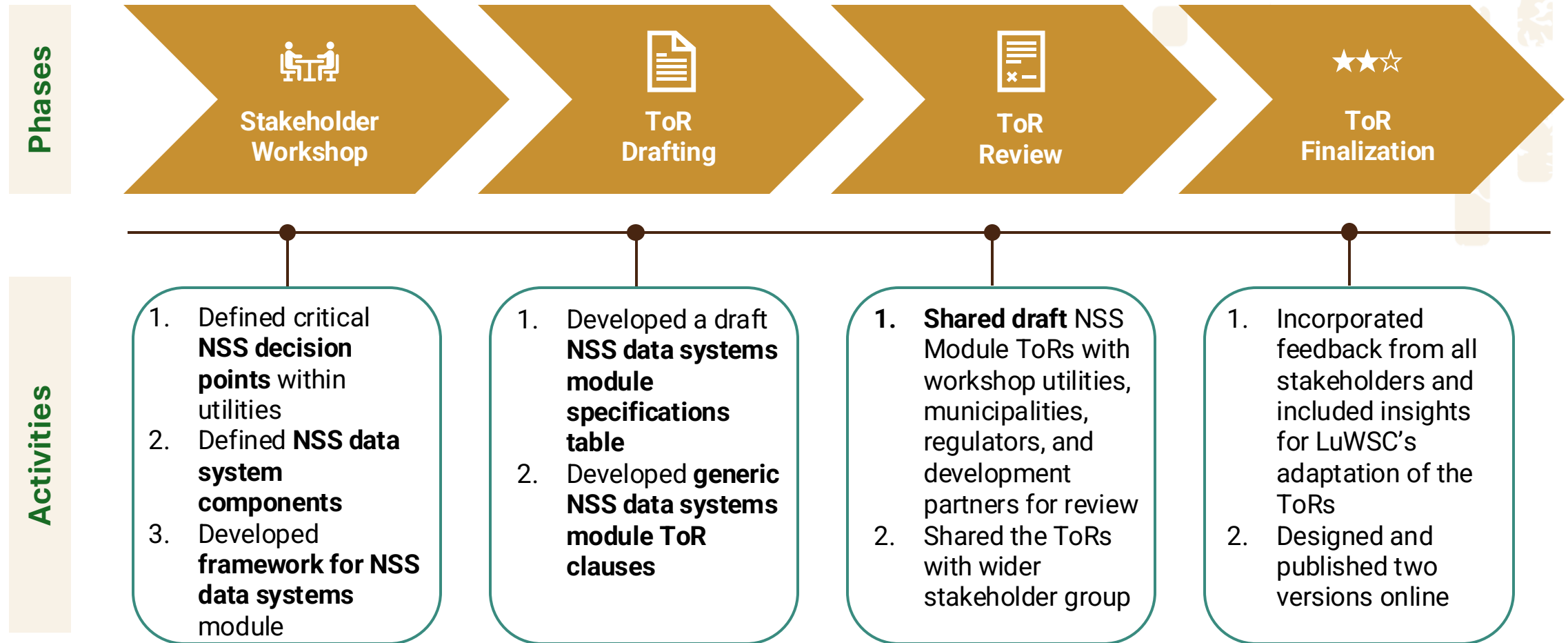5. Absence of NSS data systems guiding principles

2

NSS data is not fully mainstreamed into utility decision-making process

1. Inadequate decision making

2. Lack of coordinated sanitation programming and investments.

Dev-Afrique collaborated with ESAWAS to develop a generic NSS Data Systems Module ToR document for utilities and municipalities

Phases

Stakeholder Workshop → **ToR Drafting** → **ToR Review** → **ToR Finalization**

Activities

Stakeholder Workshop
1. Defined critical **NSS decision points** within utilities
2. Defined **NSS data system components**
3. Developed **framework for NSS data systems** module

ToR Drafting
1. Developed a draft **NSS data systems module specifications table**
2. Developed **generic NSS data systems module ToR clauses**

ToR Review
1. **Shared draft** NSS Module ToRs with workshop utilities, municipalities, regulators, and development partners for review
2. Shared the ToRs with wider stakeholder group

ToR Finalization
1. Incorporated feedback from all stakeholders and included insights for LuWSC's adaptation of the ToRs
2. Designed and published two versions online

Dev-Afrique collaborated with ESAWAS to develop a generic NSS Data Systems Module ToR document for utilities and municipalities

The ToR objectives cover all critical elements of the NSS data system development process

Create Framework	Integrate Systems	System Structure	Create Module	Develop System
Create within the NSS module an M&E framework	Integrate the NSS module with other existing internal and external systems	Design and implement an updated data system structure	Create a comprehensive module to manage service delivery and business processes across the NSS value chain	Develop an NSS data system that is replicable, scalable, interoperable, user centric, and adaptable.

Utilities/Municipalities will ensure the system developer uses a comprehensive development approach

Preparation
- Stakeholder consultations to gather requirements
- System requirements definition

Database Development
- Updating existing database structure and registries
- Validation of NSS data and migration to new database

System Development
- System design (NSS service chain + M&E)
- System Development and Deployment

Interoperability
- Integration with existing internal system modules/ERP
- Integration with key external stakeholder systems

Mobile Application
- Emptier operator. FSTP Operator, Containment builder, customer and field survey app

System Support
- Capacity building and training of staff
- System maintenance support

Utilities/Municipalities will ensure the system developer uses a comprehensive development approach

Stage 1: Inception – Detail the NSS data system requirements, process flow, functionalities and architecture. Prepare a systems design and definition document.

Stage 2: Existing system database enhancement and upgrades – upgrade the existing database (develop one) to host the NSS module and import all the existing NSS datasets and information.

Stage 3: Development and deployment of the NSS data systems – develop and deploy the NSS data system and all the associated software and applications.

Stage 4: Post system implementation support – change management support and capacity building to staff and other external parties and stakeholders who will be using the system.

Proposed System Architecture

NSS Sanitation Functional Diagram and Process Flow

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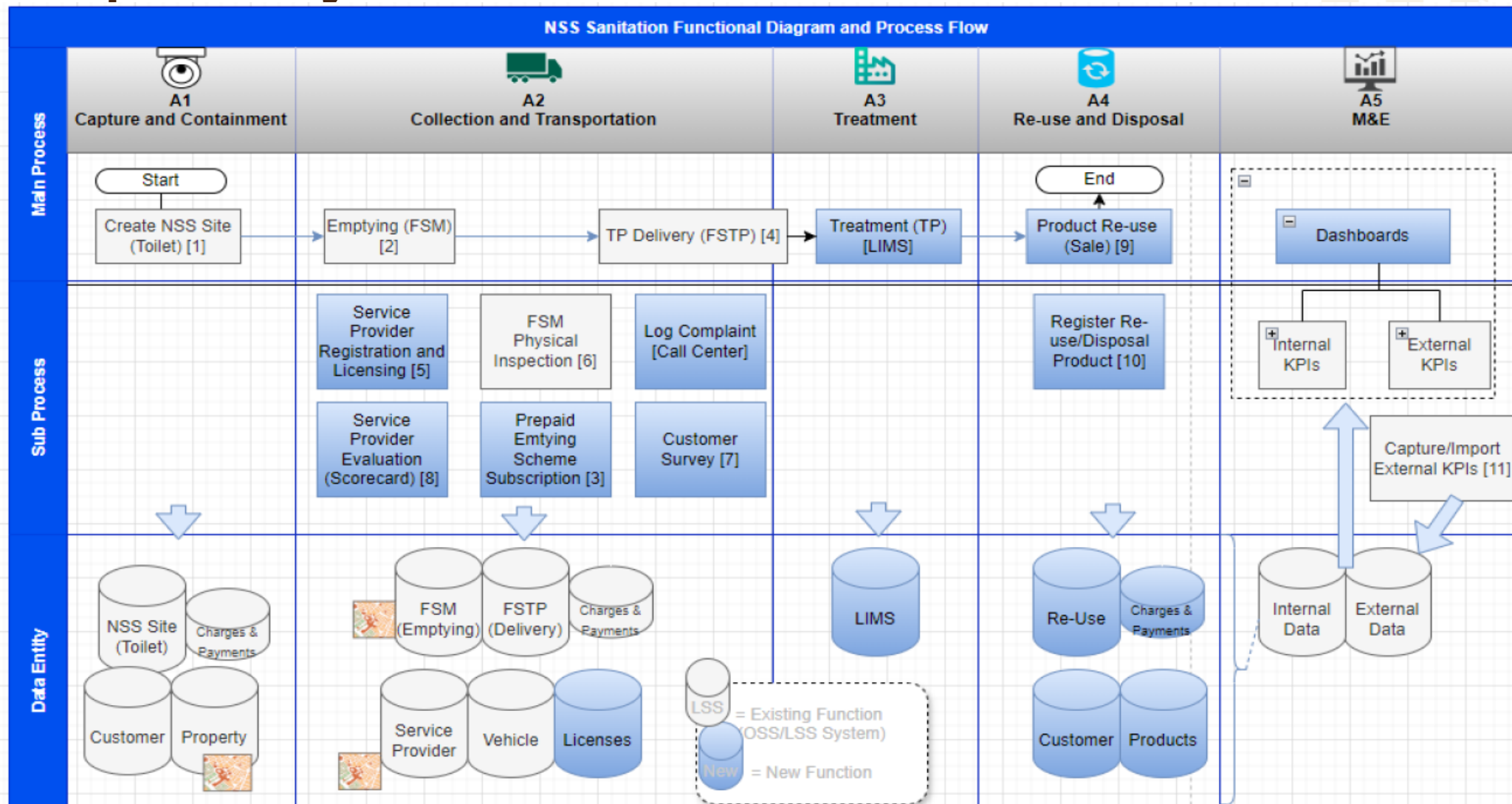
Expected Outcomes

1. Systems Definition Report

2. Database/ data conversion and validation report

3. NSS data systems and associated applications developed and deployed.

4. NSS data systems integrated with internal and external key stake holder systems

5. Capacity building training/ completion report.

What has been achieved so far

1. Generic ToR accessible online via the WSH Data labs website.

2. Application of the ToR by LWSC to develop the NSS module as part of utility's ERP

3. Prepare knowledge products from the LWSC experience on implementation of the
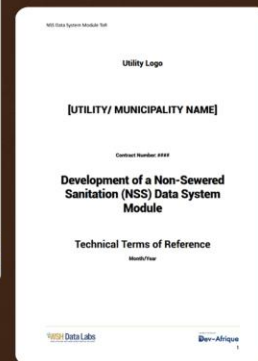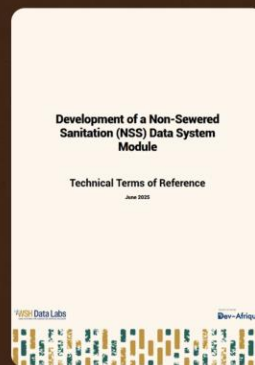
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QUESTIONS & ANSWERS

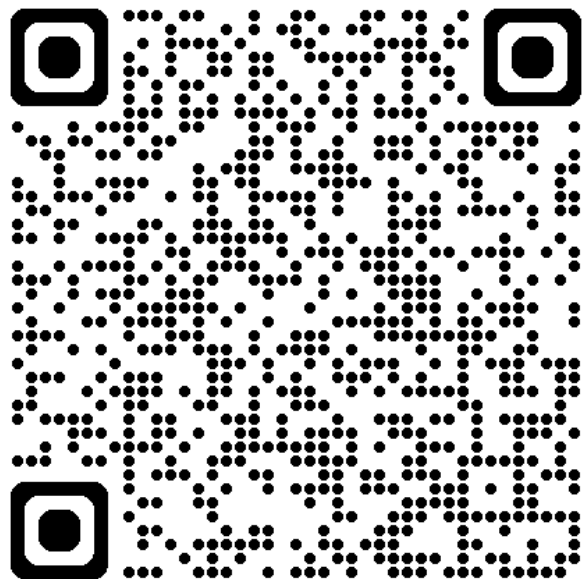**Webinar:** WSH Data Labs – Insights to Action

NEXT

STEPS

Webinar: WSH Data Labs – Insights
to Action

Stay Connected

Scan QR Code to get involved with WSH Data Labs

✓ Participate in Dev-Afrique's cross-learning activities of the public sanitation data systems project.

✓ Get access to learning materials and resources to improve sanitation service delivery.

✓ Participate in the upcoming webinar series on sanitation data system tools

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