

CONTINENTAL GIS LABORATORY MAPPING (LABMAP) PROGRAM

Leveraging GIS intelligence for Decentralized Laboratory Capacity and Epidemic Preparedness

LAUNCH AND MILESTONES

- ✓ GIS Laboratory Mapping (LabMap) launched in 2018 by Africa CDC in collaboration with ASLM.
- ✓ Framework launched on 5th November 2025 after a year of consultation with AU Member States.

STRATEGIC ALIGNMENT

- ✓ Aligned with Africa CDC Strategic Plan (2023–2027).
- ✓ Aligned with WHO AFRO Regional Strategy for Health Security and Emergencies (2022–2030).
- ✓ Follows a One Health approach for human, animal, and environmental health laboratories.
- ✓ Reinforces the Africa CDC Framework for Decentralized Laboratory Capacity

HOW AFRICA CDC AND ASLM APPLY GIS MAPPING TO SUPPORT LABORATORY DECENTRALIZATION

DECENTRALISED LABORATORY CAPACITY

- ✓ Centralized laboratory systems can delay diagnosis and slow outbreak response, especially in hard-to-reach areas.
- ✓ Decentralized laboratory capacity improves access to diagnostics, reduces turnaround times, and strengthens outbreak response

WHAT GIS MAPPING OFFERS?

- ✓ Diagnostic platform readiness
- ✓ Tiered laboratory network planning.
- ✓ Laboratory workforce readiness
- ✓ Integrated laboratory, geospatial & population intelligence dashboard
- ✓ Infrastructure, Supply chain & biosafety readiness

GOALS AND OBJECTIVES

GOAL

To sustain and optimize laboratory and information sharing systems using GIS-Laboratory mapping for effective and efficient clinical and public health laboratory services for early disease detection and surveillance of public health threats in Africa.

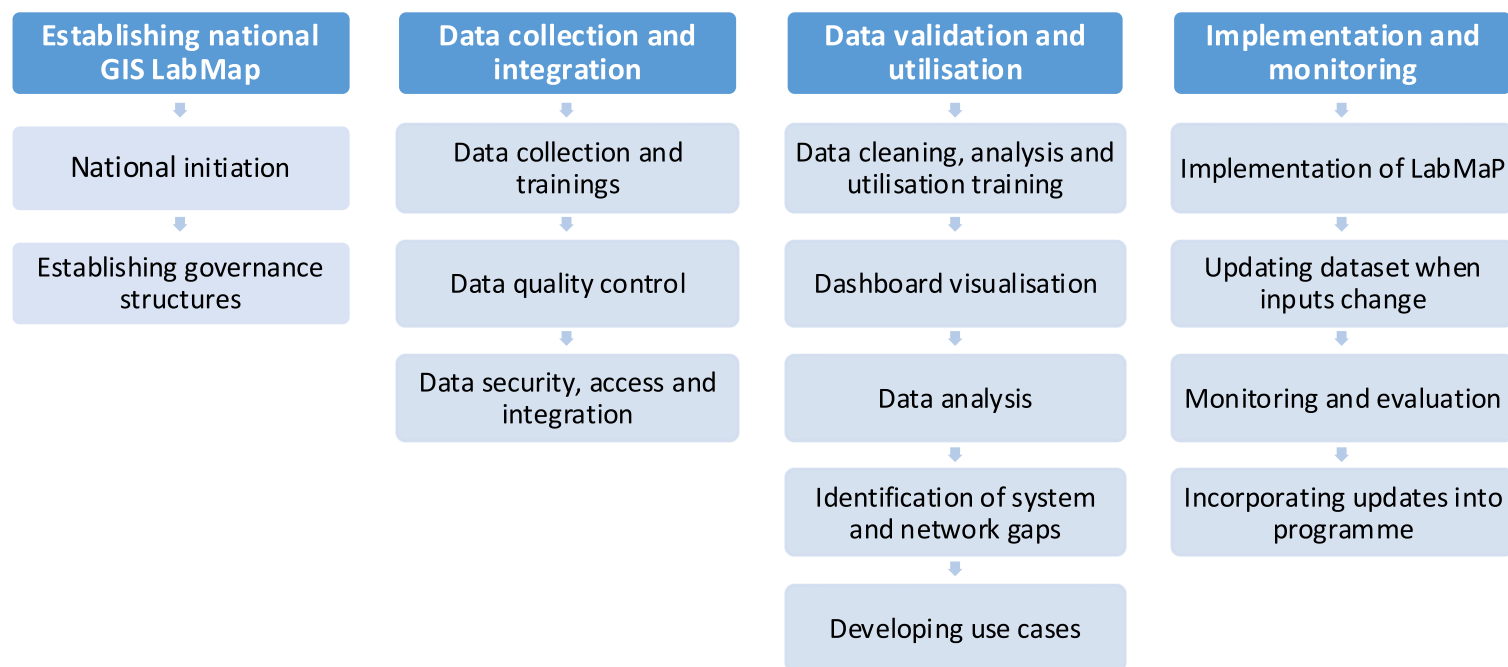
OBJECTIVE 1

Expand geospatial mapping of laboratory capacity in AU member states

OBJECTIVE 2

Increase the utilization of laboratory capacity mapping data to inform improvement and scale-up of diagnostic capacity

KEY STEPS FOR GIS MAPPING OF LABORATORY SYSTEMS AND NETWORKS



Sustainability

Embedding LabMap in laboratory strategy and operational planning
Securing commitment and funding to continue the programme

TRAINING MODELS

-  **Physical Training:** Comprehensive theoretical and practical sessions conducted in-person.
-  **Remote Training:** Leveraging online platforms to ensure broad reach and accessibility.

CURRICULUM OVERVIEW

-  Rationale and objectives for laboratory mapping.
-  In-depth training on data collection systems and protocols.
-  Detailed review of survey tool modules and data entry requirements.



EXTERNAL ASSESSMENTS

- ✓ Physical assessments conducted on-site by trained data collectors.
- ✓ Used primarily for establishing baseline data and periodic validation.
- ✓ Ensures high data accuracy through direct observation and verification.



SELF-ASSESSMENTS

- ✓ Conducted by laboratory personnel using standardized web-based systems.
- ✓ Supports long-term sustainability and facilitates annual data updates.
- ✓ Empowers local laboratory teams to monitor their own progress and capacity.

DATA COLLECTION CYCLE AND STRATEGIC ALIGNMENT

YEAR	DATA COLLECTION METHOD	ALIGNMENT TO ONE HEALTH LABORATORY STRATEGIC PLAN
Baseline	External Assessment	Establishes benchmark data to inform strategic priorities and initial implementation alignment.
Year 1	Self-Assessment	Supports annual review and early-stage implementation tracking.
Year 2	Self-Assessment	Feeds into ongoing priority setting and mid-cycle adjustments.
Year 3	External Assessment	Provides validated evidence for mid-term strategic plan reviews.
Year 4	Self-Assessment	Supports continued monitoring within the strategic plan cycle.
Year 5	Self-Assessment	Contributes to end-cycle performance tracking and planning for next strategy.
Year 6	External Assessment	Supplies validated data for new strategic-plan development and sector evaluations.



CONTINENTAL

Strategic oversight and standardization of tools and systems across AU Member States.



REGIONAL

Coordination through RCCs to support countries in GIS LabMap implementation.



COUNTRY

Operational execution leveraging existing One Health laboratory governance structures.

Governance and coordination are required at all levels to ensure clear roles, responsibilities, and effective implementation of the GIS LabMap Framework.

COUNTRY-LEVEL GOVERNANCE STRUCTURES

MULTI-SECTORAL COORDINATING COMMITTEE

- 👥 Drawn from One Health sectors (Human, Animal, Environment).
- 👥 Provides oversight of data collection, utilization, and reporting.
- 👥 Ensures cross-sectoral alignment and policy support.

CORE TEAM

- 👥 GIS LabMap focal person leading technical execution.
- 👥 Data administrator for system management.
- 👥 Health Informatics personnel for digital integration.

NATIONAL ONE HEALTH LABORATORY TWG

- 👥 Reviews progress of GIS LabMap activities regularly.
- 👥 Analyzes LabMap generated insights and strategies.
- 👥 Advises on technical adjustments and implementation.

CONTINENTAL AND REGIONAL GOVERNANCE

AFRICA CDC

Facilitates standardization of LabMap tools and systems. Coordinates GIS LabMap activities across the continent to ensure harmonized implementation.

AFLTWG

The Africa Laboratory Technical Working Group provides high-level technical guidance and expertise to align LabMap with continental laboratory standards.

STEERING GROUP

The Laboratory Systems and Networks Steering Group provides operational oversight and is responsible for reporting on progress and outcomes.

RCCS

Regional Coordinating Centres support countries in GIS LabMap implementation, providing regional context and direct technical assistance.

KEY USE CASE: LABORATORY- BASED SURVEILLANCE

DATA SUPPORT

- ① Determination of disease detection capacity across the laboratory network.
- ① Seamless integration with national disease surveillance systems for improved situational awareness.

CONTRIBUTIONS

- ① Enables real-time bio-surveillance for rapid detection of unusual health events.
- ① Strengthens IDSR and eIDSR implementation through data-driven laboratory mapping.

KEY USE CASE: STRATEGIC PLANNING AND POLICY

NATIONAL FRAMEWORKS

- Development and refinement of National Laboratory Strategic Plans.
- Integration of laboratory data into National One Health Plans.
- Evidence-based creation of National Essential Diagnostic Lists.

HEALTH SECURITY & ADVOCACY

- Informing National Action Plans for Health Security (NAPHS).
- Strengthening advocacy for laboratory systems at the highest policy levels.
- Facilitating targeted resource mobilization and investment.

KEY USE CASE: HUB AND SPOKE NETWORK OPTIMIZATION

LabMap provides critical inputs for **Diagnostic Network Optimization (DNO)**, enabling data-driven decisions for laboratory infrastructure.



OPTIMIZE REFERRAL NETWORKS

Streamline the movement of samples and results between peripheral facilities and central hubs.



IMPROVE ACCESS

Identify underserved areas and strategically place diagnostic services to reach more populations.



INCREASE EFFICIENCY

Reduce operational costs and turnaround times by maximizing the utilization of existing resources.

INTEGRATION WITH AFRICA CDC SURVEILLANCE SYSTEMS

-  LabMap data seamlessly integrates with National health information systems to provide a unified view of laboratory capacity.
-  Direct connectivity with DHIS2 and Laboratory Information Systems (LIS) ensures real-time data flow and accuracy.
-  Integration strengthens national and regional preparedness, detection, and response capabilities for public health emergencies.

CONNECTIVITY BENEFITS

-  PCR footprints linked directly to the Africa CDC Dashboard for high-level monitoring.
-  Real-time data sharing with WHO to support global health security and coordination.
-  Enhanced data-driven decision-making at all levels of the health system.



MILESTONES

- 29 Member States and 5,558+ laboratories mapped
- Developed a GIS Mapping Framework in 2025 & GIS Mapping cookbook to guide member states
- Data collection tool reviewed to include human, animal, food safety & chemical detection
- More webinars to share experiences with member states
- Defined GIS mapping applications to support laboratory decentralization by optimizing laboratory in 2025

2026 PLANS

- Laboratory Capacity Mapping and Data Collection in DRC, Uganda, South Sudan, Burundi, Zambia in response to ebola
- Support countries with GIS-Enabled Laboratory Intelligence and Dashboard Development
- Evidence-to-Action Support for Diagnostic Decentralization testing
- Strengthen knowledge sharing & evidence-based policy making through Africa Laboratory TWG & One health TWG



ACKNOWLEDGEMENTS

African
Union

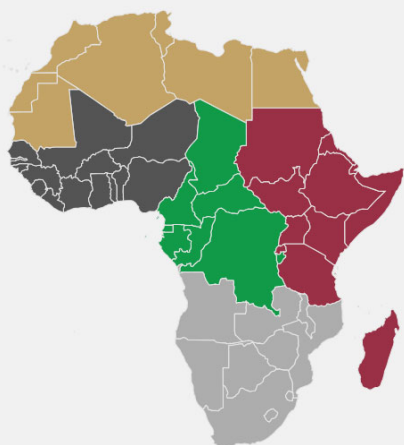


KDCA

Korea Disease Control and
Prevention Agency



UK Health
Security
Agency



Regional Coordination Centres

- Central Africa RCC
- Eastern Africa RCC
- Northern Africa RCC
- Southern Africa RCC
- Western Africa RCC

Gates Foundation

Contact: Africa CDC Center for Laboratory Diagnostics and Systems