EU Support to Africa's National Broadband Mapping Systems

(Africa-BB-Maps)





- Telecommunication
 Union (ITU) is a
 specialized agency of the
 United Nations
 responsible for
 information and
 communication
 technologies.
- 2. Established in 1865 and is the oldest UN agency.
- 3. Structured around three sectors and the General Secretariat



Background

- Universal Connectivity: Importance in a globalized and digitalized world.
- Latest #ITUdata estimates 2.6 billion people remain offline in 2023. The number of unconnected people continues to decline, but progress needs to accelerate.
- Current Statistics: Broadband penetration in SSA penetration rate of fixed-broadband subscriptions per 100 inhabitants is only 1%
- **Challenges:** Lack of broadband mapping systems, regulatory frameworks, and technical capacity.

2.6
billion people offline in the world in 2023
billion people online in the world in 2023

Source: ITU estimates

Note: being *online* means having used the Internet in the last three months



Definitions

Connectivity Infrastructure Mapping

Connectivity infrastructure mapping refers to technics and tools using geospatial data to overlay different layers (ICT and others, such as school connectivity, electricity, cost, etc.) to support the identification of connectivity gaps and evidence-based decision-making.

The ITU broadband mapping app is an example (https://bbmaps.itu.int/)

Connectivity Analysis

Connectivity analysis refers to bringing together data from different sources, considering specific data structures, the relationship between data points and a collection of ICT-related geospatial layers (e.g., mobile coverage, towers, fibers, satellites, etc.) at a specific point in time for informed decisions making.

National Mapping System

National mapping systems can be broadly defined as "any digitized information system that gathers, structures and represents georeferenced national data about the reach or quality of telecommunication/ICT networks in a given geographical area. It may include an infrastructure, service or investment layer, or a combination of those". Publicly sharing some of this data is an aspiration.

Overall Objective:

Establish national broadband mapping systems in 11 beneficiary countries, capable of producing public available validated data.

Specific intervention:

- 1. Policy and regulatory support to create a conducive environment.
- 2. Promote open-source solutions and data practices.
- 3. Provide technical support for installation, use, and maintenance of systems.

11 countries

€ 15 million

48 months



List of Countries

West Africa Region

Cote d'Ivoire

Nigeria

Benin

East Africa Region

Ethiopia

Kenya

Uganda

Southern Africa Region

Botswana

Malawi

Zambia

Zimbabwe

Central Africa Region

Burundi

Criteria

- Expressed needs for support in broadband mapping.
- 2. Level of maturity in implem enting mapping systems.
- 3. Geographical and linguistic distribution across SSA.
- Alignment with Global Gateway connectivity investment priorities.



Main Stakeholders

1. ITU

- Role: Implementing agency for the broadband mapping project.
- Responsibility: Provides technical expertise and oversees project coordination.

2. EC

- **Role**: Provides funding and strategic oversight for the projects.
- **Responsibility**: Ensures the projects align with broader regional development goals.

3. National Regulatory Authorities (NRAs)

- Role: Beneficiaries of the projects.
- Responsibility: Participate in capacity-building activities and implement regulatory changes.

4. EU Delegations:

- **Role**: participate in events, workshops, and communication efforts; consult with stakeholders and leverage DEL resources to support ITU
- **Responsibilities:** Facilitate the exchange of information to ensure projects complement ongoing initiatives; provide regular updates on activities at the country level.

Governance













NRAs of Beneficiary Countries







des Communications Électroniques et de la Poste (ARCEP)











Botswana

Botswana Communication Regulatory Authority (BŎCRA)









Communications Commission (NCC)





Burundi

Agence de Régulation et de Contrôle des Télécommunications (ARCT)





Uganda

Uganda Communications Commission (UCC)





Côte d'Ivoire

Autorité de Régulation des Télécommunications/TIC de Côte d'Ivoire (ARTCI)





Zambia

Zambia Information and Communications Technology Authority (ZICTA)





Ethiopia

Ethiopian Communications Authority (ECA)





Zimbabwe

Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ)





Kenya

Communications Authority of Kenya (CA)

Our Approach

Conduct Baseline Assessment and

Needs Analysis

Provide Targeted Recommendations Policy Dialogue and Awareness

Campaigns

Capacity Building and Training

Technical Support for Installation and Maintenance

Procure and Install Necessary Hardware and Software

Ongoing Support and Post-Implementation Assistance

Community of Practice and Knowledge Sharing

Initial Stage

Comprehensive baseline assessmen of broadband infrastructure, regulatory frameworks, and policies.

In-depth analysis of the national landscape to identify significant gaps, barriers, and opportunities.

Develop comprehensive, country-specific recommendations.

Detailed action plans for implementing best practices and nternational standards

Initiate national and regional policy dialogues to raise awareness and build support.

Conduct workshops and advocacy campaigns to educate stakeholders.

nplement broad capacity-building programs for NRAs.

Provide foundational and advanced training on system installation, use, and maintenance.

rovide extensive Lead the technical support fo procurement and system installation installation of and setup. comprehensive hardware and

software. Offer ongoing assistance for maintenance and Ensure the system is troubleshooting. interoperable and meets international

system sustainability and operation. Regular assistance

Continuous, hands-

on support to ensure

with troubleshooting and system enhancements.

Establish and promote a community of practice at national and regional levels.

Encourage knowledge sharing through regular workshops on opensource tools and data practices.

Targeted assessment focusing on specific areas of improvement.

Analyze and update previous assessments to reflect current gaps and opportunities.

Refined recommendations aimed at enhancing existing systems and policies.

Focus on integrating advanced practices to close remaining gaps.

Organize targeted policy dialogues to address specific areas needing refinement.

Reinforce existing practices and promote minor adjustments.

Conduct advanced training sessions focusing on enhancing existing technical skills.

Specialized workshops for refining system use and management.

Focus on sustaining

and optimizing

systems through

specialized skill

development.

trends.

Technical support Procure additional focused on hardware and optimizing and software to upgrade upgrading existing existing systems. systems.

standards.

Integrate new Ensure systems are technologies to maintained at an enhance current advanced level of capabilities.

Periodic support to address challenges and ensure system operation.

Assist with integrating updates and managing ongoing maintenance.

Facilitate and participate in regional communities of practice.

Enhance collaboration and knowledge exchange on advanced topics.

Medium Stage

High-level review to identify minor gaps and potential optimizations.

Update data and refine systems to meet the latest standards.

Suggest optimizations for existing frameworks aligned with best practices.

Provide minimal. focused recommendations to fine-tune systems.

Engage in high-level policy dialogues to naintain leadership n initiatives.

Participate and lead discussions on advanced topics in broadband napping.

High-level support Provide targeted training on the latest for fine-tuning and advancements and maintaining optimal system performance.

operation.

Advanced troubleshooting and integrating new technologies.

Minimal procurement focused on advanced tools and software for optimization.

Ensure systems remain state-of-theart with technological enhancements

On-demand support for troubleshooting advanced issues.

integration of new technologies as they become available.

Lead regional and international communities of practice.

Drive discussions on future broadband mapping and influence policy trends.

Advanced Stage

Expected outputs and activities

Output 1: Policy and Regulatory Support

Baseline Assessment and Maturity Matrix: Conduct baseline assessments and develop a maturity matrix to measure progress.

Policy Assessments and Recommendations: Perform needs analysis and provide policy recommendations for regulatory improvements.

Policy Dialogue and Advocacy: Organize national and regional workshops to promote policy harmonization and best practices.

Output 2: Open-Source Solutions and Data Practices

Promotion of Open-Source Solutions: Advocate for the adoption of open-source solutions at national and regional levels.

Common Data Standards: Identify and promote common data standards and practices for broadband mapping.

Development of Modular Software Tools: Create open-source software tools tailored to the unique challenges of low maturity countries.

Output 3: Technical Support

Technical Specifications and Procurement: Develop technical specifications for hardware and software procurement.

Training and Capacity Building: Conduct specialized training programs and workshops for technical staff.

Post-Implementation Support: Provide ongoing support to ensure the sustainability of broadband mapping systems.

Procurement

Software

Category	Details	
Strong authentication	Two-factor authentication (2FA), Single Sign-On (SSO).	
RBAC (Role-Based Access Control)	Role-based access control.	
Secure coding	Implement secure coding practices (protection against SQL injection, XSS, CSRF).	
WAF (Web Application Firewall)	Application firewall to protect web applications.	
Antivirus and Antimalware	Software that protects against viruses and malware.	

Cloud solutions

Category	Details
Virtual Servers	Scalable virtual machines tailored to the system's computing needs.
Data Storage	Secure, scalable, and high-performance data storage.
Virtual Networks	Configurable virtual networks, VPNs, and virtual firewalls for secure connections.
Data Encryption	Encryption of data in transit (TLS) and at rest.
Identity and Access Management (IAM)	Tools for managing users and their permissions.
Monitoring and Logging	Monitoring and log management services.

Hardware

Category	Details
Dedicated Servers	High-performance servers for storing and processing large amounts of geographic data.
Database Servers	Servers optimized for GIS databases.
Disk Arrays	Data storage systems with high capacity and reliability.
Network Equipment	Switches, routers, firewalls, ensuring secure and fast data transmission.
Environments Configuration	The tender will also cover the configuration of development, test, and production environments.
Safety Provisions	RAID Systems : Data protection at the hard drive level.
	TPMs (Trusted Platform Modules) : Secure storage of cryptographic keys.
	Hardware Firewall : Dedicated firewall devices to protect against unauthorized access.
	Network Segmentation : Using VLANs to separate different network segments.

Implementation arrangements

Project Management:

• ITU as the implementing agency, managing overall project execution.

ITU Expert Teams:

 Formation of 11 European expert teams and match making for each Sub-Saharan beneficiary country, composed telecommunications engineers and legal policy advisors.

ITU Team	Beneficiary countries
ITU Team 1	Cote d'Ivoire
ITU Team 2	Nigeria
ITU Team 3	Benin
ITU Team 4	Ethiopia
ITU Team 5	Kenya
ITU Team 6	Uganda
ITU Team 7	Botswana
ITU Team 8	Malawi
ITU Team 9	Zambia
ITU Team 10	Zimbabwe
ITU Team 11	Burundi

Project Timeline

- Baseline assessments, policy analysis, and advocacy for broadband mapping across Sub-Saharan Africa (SSA)
 - Baseline assessments and policy analysis for standardized broadband mapping.
 - Development of a Maturity Matrix and regulatory recommendations.
 - Sub-regional advocacy and promotion of best practices.
 - Creation of national databases with infrastructure data for high-maturity countries.

- Consolidation of gains and post-implementation support
- Technical training and certification in low-maturity countries.
- Post-implementation support in medium and low-maturity countries.
- Preparation for project closure.

2025 2026

2027

2028

Implementation of broadband mapping systems and data standardization

- Common data standards and open data practices in medium and low-maturity countries.
- Establishment of national broadband mapping systems in medium and low-maturity countries.
- Technical training and certification for high-maturity countries.

Final consolidation and project closure

- Continued training and post-implementation support in low and medium-maturity countries.
- Final closing event targeting all countries.

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Thank you, any question?

