Technical Training Workshop:

**Universal Service Efficiency and Quality Infrastructure Data
− The foundation for inclusive and affordable connectivity**

Date and time: 2-4 May 2023 | 9:00-16:30 West Africa Time

Website: http://itu.int/go/2023-training-workshop-sierra-leone

Workshop summary and takeaways

Overview

The three-day technical training workshop, welcoming close to 70 participants, was organized by ITU together with the Universal Access Development Fund (UADF) and the National Communications Authority (NatCA) in collaboration with the Ministry of Information and Communications on 2-4 May 2023 at Radisson Blu hotel, Freetown, Sierra Leone. In focus was **Universal Service Efficiency and Quality Infrastructure Data − The foundation for inclusive and affordable connectivity**. The technical workshop brought together attendees consisting of senior public servants, private sector players like multinational organizations (MNOs), internet service providers (ISPs) and development partners, including World Bank and UNICEF in Sierra Leone.

The first two days of the workshop were dedicated to universal access and service for staff of the regulator and policy makers in relevant ministries and agencies with the aim to bring to the fore the fundamentals of universal access to the internet, how it is funded and how a dedicated fund, like the Universal Access and Development Fund in Sierra Leone, can play a critical in bridging access and service gaps. More broadly, through the establishment of a common frame and vocabulary, the purpose was to open up opportunities for and deepen collaborative inter-agency partnerships and strengthen broader stakeholder engagement with a view to creating a platform for inclusive exchange towards a sustainable public-good connectivity model for Sierra Leone. The training was guided by leveraging ITU's Universal Service Financing Efficiency Toolkit to expand the knowledge and understanding of public officials in selected government ministries, agencies and departments (MDA) in need of universal access and service interventions.

The audience of the third day was a combination of public and private, bringing together participants in the first two days, MNOs and ISPs to discuss the importance and potential impact of developing and maintaining a culture of quality infrastructure data and mapping practices and its direct linkages to the national digital transformation agenda.

In his keynote address, the **Minister of Information and Communications, Honourable Mohamed Rahman Swaray** recounted the government's effort in putting together the requisite broadband infrastructure by investing in submarine and terrestrial optical fibre networks spanning across major population centres, with multiple redundancies, and terminating at the borders of neighboring countries. He equally highlighted progressive policy and legislative strides including cybersecurity, electronic transaction, National Communications Authority acts and a recent National Digital Development Policy serving as the anchor of the country's digital transformation agenda. He further noted that the intervention of ITU in building the capacity of the sector in particular the Universal Access Development Fund and the regulator was a welcome step in the right direction for bridging the digital skills gap and a direct complement to implementation of the national digital development plan.

The workshop content was delivered through well-structured sessions to address fit-for purpose needs applicable to the Sierra Leone context using ITU expert trainer and internal ITU resources from the Telecommunication Development Bureau and Regional Office for Africa. The sessions and related content in all three days of the workshop were divided into expertise-led training with predefined content, deep-dive panel discussions and cross-cutting knowledge sharing across key sectors including, health, education, and agriculture.

"I have never seen public servants so enthusiastic about a training workshop to the point that they could afford to attend all three days without a break. This shows the value created by ITU is directly meeting the needs on ground and we hope a long term broader program can be designed by ITU in collaboration with relevant sectors'' − A senior public servant from the Ministry of Justice.

The general feeling at the end of the event was the awareness created among all participants and the critical role ITU can play in supporting the government in bridging the digital skills capacity gap to enhance the successful implementation of the country's digital transformation plans.

Background

Over the past decade, Sierra Leone has demonstrated the desire to grow past the limitations of the decade long civil war amidst social and economic challenges, by prioritizing investment in rebuilding the country's infrastructure across the country with support from development partners. In addition to infrastructural gains, there has been efforts on the policy and legislative front in addition to relevant regulations which provide a good foundation upon which connectivity initiatives, such as the Giga school connectivity initiative can thrive in the long term.

Evident challenges, both in terms of funding and critical human expertise remain to drive through an anticipated vision of a digitally-inclusive Sierra Leone. As a result, an understanding of the status of what is existing, potential gaps and opportunities for a whole-government digital skills development is a major step moving forward in the implementation of the national digital development agenda; thus the essence of this training workshop.

Participation

The training workshop was specifically designed to target the regulator and the universal service secretariat and key sectors in need of universal connectivity and access to digital services as prioritized in the country's Medium Term National Development Plan and the National Digital Development Policy. There were seventy-two participants in total. Attendance at the universal service training piece was generally very impressive and beyond planned quota, while the infrastructure data and mapping segment on final day was a little below expectation due to the absence of some operators.

Universal Access and Service Workshop (Days 1 and 2)

The two first days provided practical insight for impactful and sustainable universal access and service implementation by using analytical tools, examples, and templates that are grounded in practical experience and designed to help them navigate common questions and challenges faced when using public funds to design, implement and finance programmes and projects that facilitate access to digital technologies and communication infrastructure. The training workshop further created an open space where participants had the opportunity to have practical follow up interaction from the online training session with a view of having deep dive discussions in the context of Sierra Leone's Universal Access and Service aspirations.

This segment of the workshop was delivered by ITU expert trainer Ms Thabisa Faye using predefined content in line with the [Universal Service Financing Efficiency Toolkit](#) with additional slots for key sectors of health, education, agriculture to share thoughts on their digitalization plans, challenges

and opportunities for collaboration. It consisted of eight specially-structured sessions, five of which were trainer-led, two deep-dive sessions to hear the local stories and a final session dedicated to reflections.

Sub items on key topics discussed

Sessions 1 and 2: Fundamentals of universal access and service, the financing tools and approaches

Key discussion points included to:

- Understand the concept of 'crowding out' private capital and the role of public vs private funding in universal access and service
- Identify the key areas for policy and regulatory intervention and funding which broadly cover the digital policy value chain, i.e. connectivity, adoption, innovation and inclusion;
- Identify the supporting regulatory and finance tools that can be used to reduce costs and risks and to incentivize investment;
- Understand the various traditional and innovative funding models that can be used to support UAS

Session 3: Designing, implementing and maintaining impactful universal service programmes

This aspect of the training was focused on productive use of universal access and service funds either through subsidies, grants or self-initiated projects. It will provide insight into assessing needs and selection of target communities for optimal impact. Key learning outcomes from this session were to:

- Identify various project types (aligned to policy and strategy).
- Understand the importance of impactful projects based on evidence collected through baseline reports, mapping and forecasts.
- Assess project readiness and measure project impact.
- Understand the principles and processes recommended to select and appoint service providers, vendors, and contractors.
- Design monitoring and evaluation frameworks which incorporate continuous assessment so that the impact of the projects can be determined, as well as whether they are "worth" the investment.
- Use supporting mechanisms such as good governance, effective project oversight and solid partnerships to support the implementation of projects.

Questions and discussion

Giga Sierra Leone was used as an example of universal connectivity, where a presentation was provided by the Directorate of Science, Technology and Innovation (DSTI)'s Ms. Michala Mackay, Director and Chief Operating Officer, and Ms. Fatmata A Bangura, Giga Sierra Leone Project Coordinator, sharing insights into the project.

- Every stakeholder has some value that they should bring to the table, failing to identify and bring onboard the right stakeholders could serve as a huge barrier and missed opportunity in term resource mobilization and long-term sustainability of projects.
- The major part of the discussions was around the Giga initiative in Sierra Leone, there were some concerns raised by the audience around communication which could be improved and the lack of inclusion of relevant stakeholders in the technology sector which could contribute to the future success of Giga in Sierra Leone.
- Another interesting discussion point was why Orange as a mobile operator was granted a contract for connecting schools. This was however clarified by the project that it was the

outcome of a competitive bidding process through UNICEF procurement system. This raised additional concern which noted that traditionally ISPs are licensed to operate in this and allowing MNOs to participate will actually swallow innovative inclusion of local players in the ecosystem.

Session 4: Fund 2.0 – Designing and evaluating successful whole-of government Universal Access and Service (UAS) strategy

This session discussed approaches to reviewing Funds effectiveness. It addressed questions like; how to assess a universal service fund, and its performance; and the policy and legislative levers to use to influence the effectiveness of the Fund. It further considered how the regulator and Fund could determine instruments needed to periodically review the Fund to:

- Understand approaches to review an existing Fund or set up a new Fund (Fund 2.0).
- Understand the relationship between policy and legislation and the efficiency and effectiveness of the Fund.
- Use strategy, policy, research and budgets to measure the impact of the Fund.
- Identify new roles for Fund 2.0.
- Applying the theory and to the local environment.

Sessions 5 and 6: Deep-dive sessions – Practical application and investment, partnerships and collaboration

These sessions, moderated by Mr. James Cobba, Giga National Project Consultant, ITU and Mr. James Houghton, Innovation Specialist, UNICEF Sierra Leone, brought together the Universal Access Development Fund, Ministry of Information and Communications, Ministry of Health and Sanitation, Ministry of Agriculture, and World Bank Sierra Leone country office to discuss Sierra Leone's digital development strategy, sectoral digital connectivity and service plans and partnership and investment opportunities and needs.

Mr. Nyakeh Yormah, Acting Director of Communications, Ministry of Information and Communications shared on the National Digital Development Strategy (NDDS), Mr. Sappay Foray-Musa, Deputy CEO, Universal Access Development Fund provided insights into the aspirations and functioning of UADF, while Dr. Tahir Bockarie, Digital Health Specialist, Ministry of Health and Sanitation and Mr. Chernor Amadu Jalloh, ICT Officer, Ministry of Agriculture, spoke to digitalization in their sector, emphasizing the need to work closer together and implement the synergies that become increasingly apparent. Dr. Ransford Mensah, Digital Development Specialist, World Bank country office shared on some of the ongoing development support to the Government that was ongoing and planned.

Through the presentations and discussions participants had the opportunity to gain insight into the national digital development policy and its linkages to health, education and agricultural sectors. Further thoughts were shared by each sector on: their digitalisation plans; where they were in the implementation; barriers and challenges being encountered; possible opportunities and synergies that could be leveraged by other sectors; and, their sector's expectation at the end of this training workshop.

Questions and discussion

- While each sector informed the audience of some interesting applications that are currently in use, both agriculture and health alluded to connectivity and energy being a major challenge hindering service availability, uptake and innovation.
- A major discussion point was the need for information sharing and collaboration as it was very clear that there are a lot of good initiatives going across sectors that others could latch upon, but because of limited inter-agency exchanges there is so much duplication of effort which is invariably affecting whole-of-government impact.

- To address the aforementioned lack of collaboration and information sharing challenge, the Ministry of Information and Communications in their presentation noted that in the National Digital Development Policy approved by cabinet recently, seeks to address this cross-cutting by the establishment of the National Digital Development Agency. Few were aware of the new policy which spoke to the need to strengthen sharing and communication on matters that concern digital development.
- Because 2G technology is the predominant connectivity service in rural communities, USSD-based technology has been the innovative approach being leveraged by all to ensure some form of availability and inclusion as a way of circumventing the data access challenge.

When it came to investment, partnerships and collaboration the discussion touched upon the following areas, among others:

- How can whole-of-government collaboration be envisaged and what are practical next steps that need to be taken to enhance such?
- The digital development project supported by the World Bank is meant to harmonize and enhance the government's drive for inclusive and sustainable digital transformation in Sierra Leone. What is the project about and how can it support digitalization plans of sectors like health, education and agriculture?
- Building a whole-of-government framework for inclusive and affordable connectivity could require an understanding of who is doing what, in this regard, what are some thoughts on the impact information and coordinated planning with relevant stakeholders can have?
- What impact can a fund like UADF have on the country's digital development agenda if efficiently managed?
- What regulatory concessions and possible adjustment could the regulator consider in support of universal access to broadband and digital services?
- Development partners are aligned with sectors that are traditionally embedded in their core operations, however, where there are cross-cutting interest, what value will it add in the context of Sierra Leone for partners to invest round the country's digital development agenda for of whole-of-government impact?

The discussions during the panel paved the way forward for concrete takeaways to be articulated from the discussions on universal service and access in Sierra Leone.

Session 7: Reflection and takeaways towards a whole-of-government approach for universal access and service

Facilitated by Ms. Thabisa Faye and Ms. Christine Sund, this session aimed at reflecting on lessons learned, learning experiences and knowledge sharing on collaboration to put in place a whole-of-government approach for universal access and service. Organized under three key overarching areas that had emerged consistently over the 2-days – **connectivity, collaboration, implementation and cross-cutting capacity development** – the participants shared their reflections and practical steps to address the gaps that had been voiced. The reflections will serve to guide follow up discussions.

Some examples are shared in the table below:

connectivity	collaboration	implementation
Infrastructure – Provide roll out plans, undertake mapping of all base stations and passive infrastructure. Continue towards the establishment of an NREN for enhanced	**Public hearing** – Hold town hall debates on ICT to share and get view of what is being done and what can be improved. Use community radio stations to share information and consult local communities.	**Delivery of project** – Evidence-led approach to out-source or in-source implementation. Request-for-information to provide context for project delivery.

connectivity to schools (higher education).	Use short codes for bulk communications.	
Energy – Leverage the national digital online electrification project with its mapping of the nation's electricity grid and points of access.	**Stakeholder engagement** – Have a stakeholder champion and leader. Coordinate with the public and broader stakeholders. Have clearly defined institutional frameworks. Identify and pool expertise from across government, private sector, academia.	**Adequate project work breakdown structure** – Have a proper breakdown of what is entailed in each project.
Quality of Service – Short code lines for public good services. Need expressed to share these short codes and the purpose they are used for.	**Information and knowledge sharing** – Ensure sharing of research and knowledge. Use an intranet to build a research repository of information. Establish a central government information hub for all infrastructure project and government business.	**Project design** – Implement project design framework and best practice
Access to relevant content – Take seriously the use of offline content for education institutions and schools. Build up a repository of offline content that can be shared across schools and communities.		**Linkages** – Ensure understanding of linkages between projects are known and synergies explored.
Local content – Advocate and work more for localization of content in indigenous languages.		
Digital skills – Use existing facilities for skills, foster, digital learning hubs and use institutions of higher learning to build digital skills.		
Sustainability – Ensure engagement of the community with policy development from the community ground up for community ownership.		
capacity		
Capacity building – Upskill users, from end users to policy makers. **Digital skills** – Conduct a comprehensive digital skills audit at all levels to understand status, gaps and area where targeted interventions are needed (urgently, mid-term, longer term). **Targets, monitoring and evaluation** – Develop evidence-based targets for bridging the digital skills gap. **Special focus on SMEs** – Upskill staff in small and medium sized enterprises through tertiary institutions and regulator with support from partners.		

Technical Workshop on Infrastructure Data and Mapping (Day 3)

Access to affordable energy and broadband connectivity have increasingly become inseparable public good utility services that form the bedrock for equality, inclusivity, and the foundation for digital transformation. Designed with a view of bringing together senior technical officers from Mobile and Internet Service Providers to join participants in the universal service and access training. It served as a platform for participants to understand the state of telecoms and energy infrastructure in Sierra Leone, while equally discussing good practices across the region and the value in building collaborative frameworks for infrastructure data and mapping. The segment of the workshop consisted of three sessions, two of which were expert-led training and a panel discussion on infrastructure data sharing in the context of Sierra Leone.

Mr. James Cobba, ITU Giga National Project Consultant set the stage for the discussions sharing also key highlights from the workshop on universal service and access.

Sub items on key topics discussed

Session 1: Why infrastructure data and mapping, and the state of infrastructure data and mapping in Sierra Leone

Facilitated by Mr. Ihar Shchetko, Connectivity Project Officer, ITU Telecommunication Development Bureau, this session was designed to discuss the importance and potential impact of developing and maintaining a culture of quality infrastructure data mapping practices and its direct linkages to the national digital transformation agenda. It will further provide broader insight into ITU's collaborative engagement with countries within the region to infrastructure data mapping in the sector. Participants were given some useful insights through practical demonstration on ITU broadband maps and available data assessment, infrastructure data collection, Infrastructure analysis, and Interactive maps.

Session 2: Data informing last mile connectivity projects and planning

This session was a continuation of discussions on infrastructure data and approaches for infrastructure project deployment it included insights into: The ITU last-mile connectivity toolkit, Infrastructure business planning toolkit and training opportunities provided, and Infrastructure mapping training modules.

At the end of sessions 1 and 2, two critical questions were general raised by the audience: How could ITU designed data templates be adapted to the needs of the regulator to enhance infrastructure data collection and analysis and what was the possibility of leveraging ITU infrastructure data mapping effort to develop Sierra Leone specific national interactive infrastructure map.

Questions and discussions

- The regulator highlighted the value having quality infrastructure data collection process and requested if ITU could share infrastructure data and mapping template with NaTCA and then further discussions could be held on modifications and adaptability to local context, as required.
- The room was filled with excitement after practical demonstrations of what a country-wide infrastructure data mapping system would look like and the interesting possibilities that come with superimposing critical data of sectors like health, education and agriculture giving a whole-of-government outlook on specific indicators of interest to various partners. Further requests were made by participants to ITU for the possibility of having a comprehensive training on infrastructure data mapping and last mile connectivity.
- An interesting part of the mapping discussion was the question on a recommended GIS tool to agencies for their facility mapping and the challenges they are facing with regards open-source

vs proprietary mapping tools, associated cost and requisite technical skills set in determining the best route to be taken in the development of a localized infrastructure mapping platform. The trainer however indicated the willingness of the ITU mapping team to support countries in need of open-source expertise in the development of a fit-for- purpose national infrastructure mapping system.

- Concerns were raised by some sector representatives that operators are deliberately unwilling to share information, particularly infrastructure data; this was however clarified by the regulator that operators are only obligated to share data with the regulator and/or to third parties when legitimate requests are channeled through the regulator and could be granted on need-to-know basis.

Session 3: Panel discussion around the sharing of infrastructure data and mapping for informed decision-making

This session was designed to share insights into concerns, ramifications opportunities around building trust for quality national infrastructure data mapping practices for sustained growth of the sector. The panel was constituted by representatives from operators in Mr. Emmanuel Williams, Chief Technical Officer, Qcell SL, Mr. Desmond Macfoy, Director of Operations, KNS, the regulator in Mr. Sahr M Sewah, Director of Engineering, National Communications Authority, and Ms. Fatmata A Bangura, Giga Sierra Leone Project Coordinator, Directorate of Science Technology and Innovation, in an engaging discussions with the participants. Together they shared thoughts around opportunities but also sensitive matters to consider when it comes to sharing infrastructure data and mapping for informed decision-making, guided by some pointed questions:

- What are the fears and legitimate concerns in sharing infrastructure data and what could be done to alleviate those concerns? Lack of clear guidelines for sharing, competition and the legitimate concern of not having clear insight into what data shared could be used for, where major concerns shared by panellists.
- Ramifications of not having consistent and quality infrastructure data in the sector and the potential impact on inclusive and affordable access? Misaligned and misinformed investment which may have significant impact on the country's desire for inclusive and affordable connectivity.
- What systems, processes and/or procedures do you think should be put in place internally as institutions and by regulatory guidelines for the broader sector? Development of internal good data management protocols and defined regulatory guidelines were deemed clear first steps to ensure trust in infrastructure data sharing.
- Will it be a good idea to have an integrated software to which all players contribute data in real-time, the value and opportunities that come along with having such a platform? The answer to this question was a resounding both from the panel and the general participants.

Conclusions and next steps

- Stakeholders unanimously agreed on the need to have a national interactive **infrastructure data and mapping system** that incorporates broadband and energy data as the foundational system with superimposed data of health, education, agriculture and local government facilities. In view of such a platform, participants expressed desire for the regulator and USF to engage ITU and explore the possibility of support in the development of such a system for the country.
- **Connectivity** (including energy), **collaboration** (including information sharing), **implementation** and comprehensive **capacity development** and digital skilling where among major themes that came up in the discussions by the entities participating in the discussions.
- As first logical step to deepen whole-of government collaboration among participating institutions is, the formation of a **technical level working group** deemed a mandatory

requirement as a matter of urgency. The technical working group would be charged with, among others to develop a framework on information sharing on all cross-cutting themes and issues. Each agency will be asked to nominate a representative to the technical working group.

- Participating institutions agreed to collaborate with UADF and follow through on the development of an **inclusive universal access and service strategy** as a next step from the workshop.

Annex 1: List of participants

NO	NAME	INSTITUTION
1.	Mohamed Rahman Swaray	Ministry of Information and Communications
2.	Makie Turay	Ministry of Information and Communications
3.	Julius Terry	Ministry of Information and Communications
4.	Michael Coker	Ministry of Information and Communications
5.	Solomon Parsons	Ministry of Information and Communications
6.	Chernor Amadu Jalloh	Ministry of Agriculture and Forestry
7.	AbuBakar Sesay	Ministry of Agriculture and Forestry
8.	Kadiatu Bah	Ministry of Agriculture and Forestry
9.	Nathaniel Soloku	Ministry of Tourism and Cultural Affairs
10.	Nabieu Yambasu	Ministry of Tourism and Cultural Affairs
11.	Sylvester Mansaray	Ministry of Justice
12.	Regina Samuels	Ministry of Health and Sanitation
13.	Karim S.B Momoh	Ministry of Health and Sanitation
14.	Yayah Sesay	Ministry of Health and Sanitation
15.	Capri Lonko Koroma	Ministry of Health and Sanitation
16.	Dr. Tahir Bockarie	Ministry of Health and Sanitation
17.	Ansumana T. Lamin	Ministry of Technical and Higher Education
18.	Ausgustine Lamin	Ministry of Justice
19.	Ishmael Bangura	Ministry of Energy
20.	Abdul James Songa	Ministry of Energy
21.	Fellah I. Lamin	Ministry of Energy
22.	Abdul Karim Mansaray	Office of the Vice President
23.	Dela Daniel	Cabinet Secretariat
24.	Michala Mackay	Directorate of Science Technology and Innovation
25.	Vidal Lisk	Directorate of Science Technology and Innovation
26.	Mamie Monjama Alpha	Directorate of Science Technology and Innovation
27.	Fatmata A Bangura	Directorate of Science Technology and Innovation
28.	Smart I.B. Kokofele	National Telecommunications Authority
29.	Mohamed Kenneh	National Telecommunications Authority
30.	Khadijatu H. Bah	National Telecommunications Authority
31.	Ibrahim Kaikai	National Telecommunications Authority
32.	Ing Mohamed Keimbe	National Telecommunications Authority
33.	Ing Thomas M. Jusu	National Telecommunications Authority
34.	Muniru H. Songo	National Telecommunications Authority
35.	Shaka Sasha Essa	National Telecommunications Authority
36.	Mamawa Kaikai	National Telecommunications Authority
37.	Marian N. Yarjah	National Telecommunications Authority

38.	Neimatu G. Kolar	National Telecommunications Authority
39.	Melvin E. King	National Telecommunications Authority
40.	Gibrilla Burkary	National Telecommunications Authority
41.	Harding E. Tommy	National Telecommunications Authority
42.	Salamatu Chakanda	National Telecommunications Authority
43.	Ebun Yankson	National Telecommunications Authority
44.	Abdul Bah	National Telecommunications Authority
45.	Marie Momoh	Universal Access Development Fund
46.	Abu B. Foray Musa	Universal Access Development Fund
47.	Magdalene Winifred George	Universal Access Development Fund
48.	Abu B. Kallon	Universal Access Development Fund
49.	Brima Sannoh	Universal Access Development Fund
50.	Cherinor Abdul Jalloh	Universal Access Development Fund
51.	Sitta Jabbie	Universal Access Development Fund
52.	David Edwin	Universal Access Development Fund
53.	Queen Fofanah	Universal Access Development Fund
54.	Dr. Ransford Mensah	World Bank
55.	Shiku Mansaray	ISOC
56.	Janice Williams	UNICEF/Giga
57.	James Houghton	UNICEF Sierra Leone
58.	Thabisa Faye	International Telecommunication Union
59.	James Cobba	International Telecommunication Union
60.	Christine Sund	International Telecommunication Union
61.	Gershom Browne	IPUSL
62.	Joseph P. B	SLUP
63.	Desmond Macfoy	KNS
64.	Pierre Johnson	Zoodlabs
65.	Daniel Kaitibi	NaTCA
66.	Emmmanuel Williams	Qcell
67.	Kizito Kaloko	AfCom SL
68.	Hassan Sannoh	AQE-SL
69.	Komba A. Allieu	Freelance media

Annex 2: Photos from the workshop

Photo 1: Group photo at the opening day of the technical training workshop on 2 May 2023 with the Honourable Minister of Information and Communications, Mohamed Rahman Swaray and participants.

Photo 2: Remarks at the workshop opening: from right to left; Mr. Sappay Foray-Musa, Deputy CEO, UADF; Dr. Christine Sund, Senior Advisor, ITU Regional Office for Africa; Mr. Smart Kokofele, Director of Regulatory Affairs, National Communications Authority; Dr. Ransford Mensah, Digital Development Specialist, World Bank Country Office; Mr. Shaka Sasha Essa, National Communications Authority as event chairperson.

Photos 3-6: Insights from discussions

Annex 3: Useful references

- **Training programme: Empowering Women in Spectrum Management 2023**
  https://prida.africa/news_press_releases/empowering-women-in-spectrum-management-a-fully-funded-training-opportunity/
- **Women in Cyber Mentorship Programme 2023:**
  https://www.itu.int/en/ITU-D/Cybersecurity/Pages/Women-in-Cyber/Women-in-Cyber-Mentorship-Programme.aspx
- **ITU The Last-mile Internet Connectivity Solutions Guide**
  https://www.itu.int/en/ITU-D/Technology/Pages/LMC/LMC-Home.aspx
  ITU Last Mile Connectivity training course in ITU Academy
  https://academy.itu.int/training-courses/full-catalogue/last-mile-internet-connectivity-0
- **ITU Universal Service Financing Efficiency Toolkit**
  https://www.itu.int/itu-d/reports/regulatory-market/usf-financial-efficiency-toolkit/
- **ITU Academy self-paced training course training course in ITU Academy**
  https://academy.itu.int/training-courses/full-catalogue/universal-service-financing-efficiency-toolkit-0
- **ITU Broadband Maps (look at Sierra Leone data):**
  https://bbmaps.itu.int/bbmaps/
- **ITU Data Hub (look at Sierra Leone data):**
  https://datahub.itu.int/
- **ITU Regulatory Tracker (look at Sierra Leone data):**
  https://app.gen5.digital/tracker/metrics