**MINISTRY OF INFORMATION AND COMMUNICATIONS**



**REPUBLIC OF SIERRA LEONE**

**SIERRA LEONE DIGITAL TRANSFORMATION PROJECT**

**IDA- E1130-SL**

**Terms of Reference**

for

**Consultancy Firm Services to Conduct a Baseline Survey/Study to assess the footprint of e-waste in Sierra Leone**

**Procurement Number: SL-MOFED-367852-CS-QCBS**

**February 2024**

* 1. **Introduction**

The Government of Sierra Leone (GoSL) has committed to transforming its economy based on a more inclusive and human-centric digital growth and development approach. A high-level vision for the digital economy is articulated in the new National Digital Development Policy (NDDP), which was approved by the Cabinet in December 2021, setting the GoSL’s vision to transform Sierra Leone into an inclusive digital economy and society and to leverage digital technology to support the GoSL to deliver on its national development plan effectively and efficiently. In support of these initiatives, the World Bank has committed to finance the Sierra Leone Digital Transformation Project (SLDTP), which aims to expand access to broadband internet, enhance digital skills and improve government capacity to deliver public services digitally. The project will support the development of a strong enabling environment for the nation’s digital transformation and digital development agenda as articulated in the National Digital Development policy.

* 1. **Project Description**

The Sierra Leone Digital Transformation Project (SLDTP) is a five-year International Development Association (IDA)-funded project supported with a US$50 million grant. The project’s main implementing agency is the Ministry of Information and Communications (MIC). The proposed Project Development Objective (PDO) is to expand access to broadband internet, enhance digital skills and improve government capacity to deliver public services digitally.

The SLDTP proposes four integrated and mutually reinforcing components, witha fifth component dedicated to contingent response to future emergencies (*Contingent Emergency Response Component*, *CERC)*.

* Component 1 – Expanding Digital Access and Increasing Resilience of the Digital Environment.
* Component 2 – Digital Skills Development and Innovation
* Component 3 - Laying Key Foundations for Digital Government Services and Systems
* Component 4 – Project Management and Implementation Support; and
* Component 5 - Contingency Emergency Response Component (CERC).

The proposed activities integrated into Components 1, 2, and 3 are designed to support the Government’s aspirations for bringing universal access to the internet for its citizens, developing digital skills to bridge the digital divide, and to modernizing public service delivery through the adoption of digital solutions by enhancing the service delivery infrastructure and platforms of the government as well as to ensure continuity of public services in times of crisis. In line with the Government’s commitment under the ITU Connect 2030 agenda to reduce the volume of electronic waste(E-Waste) by 50 percent, under subcomponent 1.4, the project will finance quantitative and qualitative baseline surveys to assess the footprint of e-waste in Sierra Leone and support finalization of the e-waste management policy and strategy framework based on a circular economy approach. The policy framework will also include the development of an e-waste reduce, recycle, and reuse (3R) strategy to address the full life cycle of electronic devices and equipment, thereby building a complete circular system

The Project is being implemented by a Project Coordination Unit (PCU) in the Ministry of Information and Communications which is the line ministry in charge of driving the government’s digital transformation strategic vision and promoting it digital government agenda. The Environmental Protection Agency Sierra Leone (EPA-SL) was established by an Act of Parliament in 2008. The broad mandate of the Agency is to effectively protect and manage the environment; monitor and regulate companies with EIA Licenses and illegal operations that have an impact on the environment and advise the Minister of Environment on all environmental matters. The EPA-SL is further mandated to enforce compliance with environmental impact assessment procedures, and actively promoting environmental education to raise public awareness about the significance of the environment to Sierra Leone's economic and social well-being.

Over the years, Sierra Leone has experienced a significant increase in the importation of used electronics, yet a comprehensive evaluation to determine the quantity of used and end-of-life electronic and electrical equipment remains absent. Obtaining information on e-waste from municipalities or landfill operators is challenging due to the lack of separation between e-waste and other waste streams during the end-of-life stage of electronics and electrical equipment. Conducting studies to assess the amount of e-waste can appear time-consuming and complex. This study aims to investigate the current state of e-waste management in Sierra Leone using empirical models. Historical quantities of e-waste over the last 5-10 years, as well as current and projected generation rates, will be estimated. National and international policies will be thoroughly examined, and recommended modifications tailored to the Sierra Leone context will be introduced. Additionally, the study will propose sound and proper management practices. Special attention will be given to identifying hazardous e-waste and implementing separate collection and treatment schemes to mitigate the risk of mixing with non-hazardous recyclables.

In view of the above problem, the Sierra Leone Digital Transformation Project, in collaboration with the Environment Protection Agency Sierra Leone, is currently seeking a consulting firm to undertake the collection, analysis of e-waste data, and establishing a national e-waste inventory. The findings and recommendations from the assessment will serve as the foundation for developing a comprehensive e-waste inventory and formulating strategies for sustainable e-waste management in Sierra Leone. The policy framework will also include the development of an e-waste reduce, recycle, and reuse (3R) strategy to address the full life cycle of electronic devices and equipment, thereby building a complete circular system. After the development of the policy framework, the project will support the implementation of the policy to ensure the collection and disposal, recycle and reuse of e-waste at the community-level through the partnership with local entrepreneurs and the private sector to encourage e-waste innovation.

* 1. **Rationale for an e-waste inventory**

Sierra Leone, like many countries, faces environmental challenges related to e-waste management including pollution management, e-waste burning issues (toxic emission, air pollution, soil contamination, water pollution etc), e-waste accumulation. Sierra Leone also lacks established policies and best practices relating management of e-waste creating room for unregulated collection, transportation and disposal methods that contribute to environmental degradation. The absence of effective environmental monitoring and regulatory enforcement exacerbates these issues, allowing for unchecked e-waste disposal and potential health hazards. The status of e-waste collection, transportation, and disposal/recycling in Sierra Leone remains uncertain due to the absence of clear guidelines. The lack of existing data on the quantity and types of e-waste hinders the development of targeted strategies for sustainable management. Addressing this data gap is a fundamental step towards formulating effective policies and practices that align with Sierra Leone's unique socio-economic and environmental considerations.

Conducting an e-waste inventory in Sierra Leone is crucial for understanding the scope of the issue, developing effective policies and strategies for responsible e-waste management, protecting the environment, and ensuring the health and well-being of the population. It is a vital step toward addressing the challenges associated with electronic waste in the country. The assessment will help identify how electronic waste disposal practices are impacting the environment, including soil and water contamination from hazardous materials found in e-waste. The inventory will also help to quantify the volume and types of electronic waste generated within the country. This information provides a baseline understanding of the scale of the e-waste problem, which is crucial for informed decision-making. The e-waste assessment will provide valuable data that will inform the development of effective e-waste management policies and regulations tailored to Sierra Leone's specific needs and challenges. It will also provide baseline for tracking changes in e-waste generation over time. This will allow for the monitoring of progress in managing e-waste and implementing sustainable practices, raise awareness among the public, policymakers, and businesses about the importance of proper e-waste disposal and the potential environmental and health risks associated with improper handling.

* 1. **Objectives of the Assignment**

The overall objective of this assignment is to develop a comprehensive inventory and database of e-waste in Sierra Leone for an improved understanding of the status of electronic waste management taking into consideration the physical flow of e-waste by origin and type for an effective management of e-waste.

The specific objectives of the assignment are:

* Identify the sources of e-waste, nature (quantity, generation rate, composition) and disposal cost of the e-Waste in Sierra Leone and estimate the amount to be generated by sectors.
* Investigate the status of e-waste management in Sierra Leone based on empirical models by estimating historical quantities (last 5-10 years) current and future generation rates.
* Identify and enlist enterprises/units (formal and informal) dealing with recycling E-Waste in Sierra Leone.
* Assess the availability, practices and capacity of recycling of E-Waste with respect to pollution control systems.
* Review the existing e-waste management systems (if any) and advise on areas of improvement through preparation of a detailed implementation plan.
* Review regional and international obligations and other legal or pertinent information that may have direct or indirect linkages with E-Waste management and environmental as well as human related health issues.
* Determine the ways in which used, and end of life electrical and electronic equipment (EEE) are disposed or managed.
* A review of all existing laws, policies, legislation, practices, database, institutional framework, E&S risk management systems. Adequacy of capacity within relevant institutions.
* Create an e-waste database
	1. **Scope of Work**

The scope of the work is to conduct an inventory of used and end-of-life electrical and electronic equipment but not limited to the following:

* Television sets
* Computer sets with CRT monitors or LCD Monitors and Notebook.
* Washing Machines
* Mobile Phones
* Refrigerators
* Air Conditioners
* Microwave transmitter equipment
* Networking equipment (Routers, Switches, Access Points etc)
* Rechargeable batteries (mobile phones, stereos etc)

**Technical Assessment**

* Legal and Regulatory Review and Compliance: Review the national and international policies, legislation, and regulations; institutional and administrative framework and permits related to e-waste management in Sierra Leone. Assess the level of compliance and identify any regulatory gaps and areas of non-compliance.
* E-Waste Generation and Quantification: Assess the current and historical quantities of e-waste generated in Sierra Leone. This includes quantifying e-waste from different sources such as households, businesses, institutions, informal sectors and industries.
* E-Waste Composition: Analyze the composition of e-waste to understand the types and quantities of materials present in electronic and electrical equipment, including hazardous substances like heavy metals and flame retardants.
* Collection and Transportation: Evaluate the existing systems for e-waste collection, transportation, and storage. Assess the efficiency and coverage of e-waste collection points and logistics.
* Disposal Systems: Identify and assess the existing waste disposal facilities in Sierra Leone.
* Recycling and Treatment Facilities: Identify and assess the recycling and treatment facilities, available in Sierra Leone. Evaluate their capacity, compliance with regulations, and environmental practices.
* E-Waste Management Practices: Investigate the existing practices for e-waste management, including recycling, refurbishment, repair, and disposal. Identify gaps and opportunities for improvement.
* Data Management and Reporting: Evaluate the systems for data management related to e-waste. Ensure accurate record-keeping, data integrity, and reporting mechanisms.
* Training and Awareness: Assess the availability and effectiveness of training programs and awareness campaigns related to e-waste management for stakeholders, including the public, businesses, and government agencies.
* Hazardous Waste Handling: Examine the practices for identifying and handling hazardous e-waste separately from non-hazardous waste to ensure proper treatment and disposal.
* Technology and Infrastructure: Evaluate the technological infrastructure and resources available for e-waste management, including e-waste tracking systems and monitoring capabilities.
* Capacity Building: Identify areas where capacity building and technical support are required to enhance e-waste management practices in Sierra Leone.
* Best Practices and Innovations: Explore best practices and innovative approaches/solutions in other countries or regions for e-waste inventory, database and management that could be adapted or adopted in Sierra Leone.
	1. **Reporting, Time Schedules, and Payment Schedule**

The consulting firm will be responsible for delivering the following:

1. Within two (2) weeks of signing the contract, the consulting firm should submit an inception report. This report aims to demonstrate the firm's comprehension of the Terms of Reference (TOR) and outline their proposed approach to accomplishing the designated tasks. It should include a well-defined methodology for the assignment, highlighting specific research questions to be addressed, key stakeholders to be engaged, and policies/regulatory frameworks to be reviewed for conducting the necessary assessments. Additionally, the report should present a comprehensive work plan with clear timelines outlining the tasks to be undertaken by the consulting firm throughout the duration of the assignment.
2. Baseline Survey Report on the nationwide assessment of the e-waste footprint providing the current e-waste status in Sierra Leone, identifying sources of e-Waste and estimated quantity of e-Waste generated in Sierra Leone and expected to be generated by sector to develop the e-waste database. The report must include an Inventory of the types of e-Waste being generated along with the volume, composition, and disposal costs. Enlist enterprises/units (formal and informal) dealing with recycling of e-Waste in Sierra Leone. Assess the availability, practices, and capacity of recycling of e-Waste with respect to pollution control systems
3. At the end of the period a database on the detailed Baseline Survey on e-waste footprint in Sierra Leone will be submitted. The database should entail sources and estimated quantity of e-Waste, types, composition, and disposal methods etc

The Consultant is expected to complete the assignment in full within 12 weeks, The Consultant will regularly report to the Director Environmental Protection Agency, or staff designated by the Director, on all aspects of the agreed activities and report to the SLDTP Project Coordinator.

The deliverables comprise the following:

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| No | Deliverable | Timeline | Indicative payment schedule |
| 1. | Inception report, detailing the procedures and timetable for completion of the assignment, the methodology, and consultation process.  | Commencement + 2 weeks | 10% |
| 2. | Interim report on the nationwide assessment of the e-waste footprint to develop the e-waste database | Commencement + 6 weeks | 40% |
| 3. | databse for e-waste inventory in sierra leone  | Commencement + 9 weeks | 20% |
| 4. | Stakeholder Validation of the interim report | Commencement + 11 |  |
| 5. | Final report  | Commencement + 12 weeks | 30% |

* 1. **Qualification and Experience of Consulting Firm**

The consulting firm must meet the following requirements:

1. Extensive Expertise and Experience in e-Waste Management: The consultancy firm should have a minimum of ten (10) years of practical experience in handling e-waste, including a deep understanding of relevant regulations, industry trends, and the environmental and health impacts associated with e-waste. They should also possess knowledge of sustainable disposal and recycling methods.
2. Proficient Research and Data Collection Methods: This includes the adequacy of methodology and the proposed work plan in responding to this TOR. The consultancy firm should employ well-defined research methodologies and data collection techniques tailored to e-waste studies. They should be capable of conducting on-site assessments, interviews, surveys, and proficient data analysis to gather relevant and accurate information.
3. Demonstrate experience in assignments relevant to e-waste sector analysis, including a list of previous work done over the period.
4. An in-depth knowledge of both local and international e-waste regulations pertaining to disposal, recycling, and transportation requirements. They should also stay abreast of emerging regulatory changes in this field.
5. Extensive Experience in Africa: The consultancy firm should possess relevant experience in working specifically within the African context, especially within the subregion. This includes a proven track record of successfully executing projects and addressing challenges unique to African settings.

The assignment calls for a team of at least three persons who will possess the following qualifications, skills and experience:

**Staff Qualifications**

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| Key Position | Experience | Qualifications |
| (1) Team Leader,/E- Waste Management (SWM) *or Environmental research* Expert  | The leading team member should have a Minimum. 10 years’ of professional experience in the fields of E-waste and/or electronics and electrical systems/management, environmental projects implementation, environmental sustainability and inventory development. Furthermore, the consultant must have demonstrated his/her experience in effectively managing at least one (1) project of a similar nature within the last five (5) years.Proven subject matter expertise and track record in e-waste management operations, and specifically on electronic waste. Knowledge of the Basel, Rotterdam and Stockholm conventions and the Strategic Approach to International Chemicals Management (SAICEM) processes.Experience working with international financial institutions, particularly the World Bank Group, in relevant areas considered a plus.Proven experience and familiarity in sub-Saharan African region Interpersonal, Communication, and Collaboration Skills: The team lead should offer at least two (2) client testimonials or feedback with contact references, demonstrating their strong interpersonal, communication, and collaboration skills.Having successfully accomplished similar tasks in the past is an additional advantage.Proficiency in the usage of computers and office software packages (word processing, spreadsheet etc.) Possess excellent technical and analytical skills.Able to communicate effectively and fluency in oral and written English language | A Master's degree or its equivalent in a related field in Environmental Sciences, Environmental Management, Natural Resources Management, Chemical management Engineering, Waste management or a related field with sound knowledge in the field of environment and waste. |
| (1) Technical Specialist Solid Waste Management (and E-waste) Specialist | Must have at least eight (8) years of post-experience with strong technical background in collecting accurate and comprehensive data related to e-waste inventories. The Specialist must employ his/her technical knowledge to identify relevant data points, utilize appropriate tools for data collection, and ensure data accuracy and completeness. He /she must be able to analyze the collected data to identify patterns, trends, and key insights.Proven subject matter expertise and track record in solid waste management operations, and specifically electronic waste management. Data Analysis and Research Skills: Strong analytical skills and proficiency in data collection and analysis tools and ability to conduct research literature reviews related to electronic waste management. Should be able to develop or utilize inventory tracking systems and software to effectively monitor and manage e-waste inventories. Must ensure that the tracking systems are capable of accurately recording and updating information about e-waste quantities, types, locations, and other relevant attributes.The specialist should have proven experience in successfully completing at least one (1) similar assignment within the last five (5) years.Proficiency in the usage of computers and office software packages (word processing, spreadsheet etc.) Possess excellent technical and analytical skills.Able to communicate effectively and fluency in oral and written English language | Master's degree in environmental science, engineering, waste management, sustainability, or a related discipline. A higher degree or specialized certification in e-waste management can also be beneficial. |
| Research Assistants/Field Researchers | A Minimum of 5 years’ experience in dealing with various research methods such as literature review, data collection, surveys, interviews, and case studies specific to e-waste/waste management studies. This includes knowledge of sampling techniques, data collection, analysis, and interpretation.Must have demonstrated experience working on at least one (1) similar assignment in the past three (3) years.Proficiency in the usage of computers and office software packages (word processing, spreadsheet etc.) Possess excellent technical and analytical skills.Able to communicate effectively in local languages and fluency in oral and written English language | Bachelor’s degree in environmental science, engineering, waste management, sustainability, environmental engineering, waste management engineering, or similar with proven ability to carry out field work applying research methodologies. . |

**Formats for Delivery and Data Management**

* All key deliverables shall be provided in editable digital form to the client. The draft and final Report shall be provided 6 weeks and 12weeks respectively after receipt of comments from the client and the World Bank
* Final reports, and drafts thereof, shall be submitted in MS Word formats. A clean MS word version and a version in track changes, showing change and how comments were addressed shall be submitted by the consultant.
* The consultant will attend regular project meetings with the client to monitor project progress and present and discuss deliverables.
	1. **Facilities Data and Information to Be Provided by Client**

For the execution of the assignment, the Environmental Protection Agency will provide necessary documentation in its possession relevant to the execution of the assignment. It shall also provide office space for the successful consulting firm to facilitate the smooth implementation of the assignment. The following shall be provided to the Consultant by the Employer:

1. facilitate the provision of access to relevant documents, project design documents and data available which may be supportive to the Consultant, and
2. prepare a letter introducing the consulting firm to operators in the telecommunications sector and other relevant institutions, wherever required in performing the assignment.
3. Assistance with stakeholder consultations

The firm shall provide all the administrative, technical professional and support staff needed to complete the assignment efficiently. The Consultants shall also be responsible for providing all other necessary facilities and logistical support for its staff/teams, including accommodation, vehicles/transportation, office equipment, field survey and investigation equipment, laboratory testing, communications, utilities, office supplies and other miscellaneous requirements wherever applicable to render their services. The firm shall nominate and make available a contact person for regular meetings with the Project Coordination Unit and DSTI teams.

* 1. **Working Language**

The working language for the consultancy service shall be English.

* 1. **Conflict of Interest**

The successful consulting firm shall declare any conflict of interest, especially if any or all of the consultants is/are currently carrying out consultancy work for other stakeholders including licensed operators or service providers in the telecommunications sector in Sierra Leone.

* 1. **Confidentiality of Information**

The firm shall protect the confidentiality of the data or information received to conduct this assignment and shall sign a confidentiality agreement with MIC. No data, information, or deliverables from this assignment will be released to third parties without the written approval of MIC. The Consultant shall surrender all data and other materials to the Regulatory Authority and shall not retain any information or materials after the closure of the assignment.