



Federal Republic of Somalia
Ministry of Communications and Technology (MoCT)

Terms of Reference (ToR)

Development of National Guidelines for Greening Digital Infrastructure and E-Waste Management

1. Background

Project Background

The Federal Government of Somalia has received a grant from the International Development Association (IDA) of the World Bank to support the **Eastern Africa Regional Digital Integration Project (EA-RDIP)**. The Ministry of Communications and Technology (MoCT) in the Federal Government of Somalia is the implementing agency for Somalia's EA-RDIP.

The Eastern Africa Regional Digital Integration Project (EA-RDIP) addresses connectivity and digital market integration needs across Eastern Africa and the Horn of Africa. The project aims to advance regional integration of digital markets by supporting cross-border connectivity, harmonizing digital regulations and policies, and removing regulatory and market barriers to establish a **Single Digital Market (SDM)**.

The project follows a **Series of Projects (SOP)** approach, involving countries and Regional Economic Communities (RECs) as beneficiaries. Phase I of the SOP includes the Intergovernmental Authority on Development (IGAD) and the East African Community (EAC), both selected for their strategic role in advancing regional digital integration.

Within SOP-I, EA-RDIP supports the Federal Government of Somalia through an IDA-financed operation to strengthen digital connectivity, enhance regulatory frameworks, and integrate Somalia into the regional digital economy. The EA-RDIP project consists of four components:

- **Component 1: Connectivity Market Development and Integration**
- **Component 2: Data Market Development and Integration**
- **Component 3: Online Market Development and Integration**
- **Component 4: Project Management and Implementation**

As digital infrastructure expands rapidly, there is an increasing need to ensure that network deployment, data center operations, ICT equipment use, and end-of-life device handling are environmentally sustainable and aligned with climate, environmental, and public health objectives.

About the National Communications Authority (NCA)

The National Communications Authority (NCA) is the regulatory authority for Somalia's communications sector, established under the Communications Law of 2017. The NCA's mandate covers telecommunications, internet services, broadcasting, ICT services, and e-commerce.

In fulfilling its mandate, the NCA is responsible for promoting sustainable sector development, efficient resource use, consumer protection, and alignment with international best practices. This includes supporting environmentally responsible deployment and operation of digital infrastructure and contributing to national efforts to manage electronic waste (e-waste) arising from telecommunications and ICT equipment.

In line with the objectives of the EA-RDIP and national environmental priorities, the NCA intends to engage a qualified consulting firm ("the Consultant") to develop **National Guidelines for Greening Digital Infrastructure and E-Waste Management**.

2. Purpose of the Assignment

The purpose of this assignment is to develop practical, implementable national guidelines that:

- Promote environmentally sustainable deployment and operation of digital infrastructure
- Reduce the carbon footprint and energy consumption of telecommunications and ICT networks
- Establish clear principles and responsibilities for the management of e-waste generated by the ICT sector
- Align Somalia's ICT sector with international best practices on green ICT and circular economy approaches
- Strengthen institutional capacity for monitoring, compliance, and implementation.

3. Scope of Work

The Consultant shall undertake the following tasks:

3.1 Assessment of Digital Infrastructure Environmental Impact

- Review the current landscape of digital infrastructure in Somalia, including mobile networks, fiber infrastructure, data centers, and ICT facilities
- Assess environmental impacts related to:
 - Energy consumption
 - Use of diesel generators and alternative energy sources
 - Cooling systems and emissions
- Review existing policies, regulations, and practices related to environmental sustainability in the ICT sector.
- Benchmark against international best practices and standards (e.g., ITU, ISO, GSMA)

3.2 Review of E-Waste Management Practices

- Assess current practices related to the lifecycle of ICT equipment, including:

- Importation
- Usage
- Refurbishment
- Disposal
- Transportation, storage, treatment, recycling, and reuse
- Identify gaps in e-waste handling, recycling, and disposal frameworks, as well as transportation, storage, treatment, recycling, and reuse
-
- Review the roles and responsibilities of operators, vendors, importers, and public institutions. This also includes producers, consumers, retailers/distributors, government regulatory bodies, recyclers, disassembly/treatment companies, reusing/refurbishing companies, and certification bodies.
- Assess alignment with national environmental laws and international conventions, as well as good international industry practices (GIIPs)

3.3 Development of National Guidelines for Greening Digital Infrastructure

Develop comprehensive guidelines covering, inter alia:

- Energy-efficient network design and deployment
- Use of renewable and hybrid energy solutions
- Energy-efficient data centers and network facilities
- Infrastructure sharing as a tool for reducing environmental impact
- Environmental considerations in network expansion and upgrades
- Reporting and monitoring requirements for operators

3.4 Development of National E-Waste Management Guidelines for the ICT Sector

Develop practical guidelines addressing:

- Classification of ICT and telecom e-waste
- Responsibilities of key actors, including operators, service providers, vendors, and importers, and their coordination with other relevant stakeholders across the e-waste value chain, such as manufacturers, refurbishers, recyclers, transporters, collectors, consumers, certification bodies, regulatory authorities, and civil society organizations.
- Collection, e-waste take-back schemes, storage, transportation, recycling, and disposal mechanisms
- Guidelines for the establishment of e-waste treatment facilities, including environmental, health, and safety considerations.
- Good practice operational requirements for treatment facilities, covering dismantling, segregation, handling of hazardous components, and occupational safety
- Extended Producer Responsibility (EPR) principles
- Public awareness and consumer responsibilities
- Compliance and enforcement mechanisms

3.5 Stakeholder Consultation and Validation

- Conduct structured consultations with:
 - Telecom operators and Internet Service Providers (ISPs)
 - Relevant government institutions
 - Environmental authorities
 - Consumer groups and private-sector stakeholders, including producers/manufacturers, assemblers, retailers/distributors, refurbishers, rescuers, recyclers, transporters, collectors, disassembly/treatment companies, certification boards, Producer Responsibility Organization, Civil Society Organizations (CSOs)/Non-Governmental Organizations (NGOs)
- Facilitate a validation workshop to review draft guidelines
- Incorporate stakeholder feedback into the final documents

3.6 Implementation Roadmap and Capacity Building

- Develop an implementation roadmap outlining:
 - Phased adoption of the guidelines
 - Institutional roles and coordination mechanisms
 - Monitoring and reporting requirements
- Propose capacity-building activities for NCA and stakeholders
- Develop compliance monitoring templates and indicators for the guidelines

4. Deliverables

The Consultant shall be responsible for preparing and submitting the following deliverables to the National Communications Authority (NCA). All deliverables shall be submitted in both editable (Word) and final (PDF) formats and shall be subject to review and approval by the NCA.

• D1: Inception Report

A detailed report outlining the proposed methodology, work plan, implementation schedule, stakeholder engagement approach, and quality-assurance arrangements for the assignment.

• D2: Environmental Impact and Digital Infrastructure Assessment Report

An analytical assessment of the environmental footprint of digital infrastructure in Somalia, including energy use, emissions, and sustainability practices, benchmarked against international best practices.

• D3: E-Waste Management Assessment Report

A comprehensive review of existing ICT and telecommunications e-waste practices, identifying gaps, risks, institutional responsibilities, and opportunities for improvement.

• D4: Draft National Guidelines for Greening Digital Infrastructure

Draft guidelines providing principles, standards, and recommended practices for the environmentally sustainable deployment and operation of digital infrastructure.

- **D5: Draft National E-Waste Management Guidelines for the ICT Sector**

Draft guidelines defining roles, responsibilities, procedures, and compliance mechanisms for the environmentally sound management of ICT and telecommunications e-waste.

- **D6: Stakeholder Consultation and Validation Workshop**

A report documenting stakeholder consultations and one validation workshop (1), including key feedback received and how such feedback has been addressed in the draft guidelines.

- **D7: Final National Guidelines for Greening Digital Infrastructure**

The finalized guidelines, incorporating stakeholder feedback and NCA comments, are ready for adoption and implementation.

- **D8: Final National E-Waste Management Guidelines**

The finalized e-waste management guidelines, incorporating stakeholder feedback and NCA comments, are ready for adoption and implementation.

- **D9: Implementation Roadmap and Final Consolidated Report**

A consolidated report presenting a practical implementation roadmap, awareness plan, monitoring arrangements, and all finalized deliverables.

5. Payment Schedule

The assignment shall be implemented over a total duration of **four (4) months (sixteen weeks)**.

Deliverables	Timeline (Weeks)	Payment
D1 – Inception Report	Weeks 1–2	10%
D2, D3, D4, D5, D6 – Assessments, Draft Guidelines, Consultation & Validation workshop	Weeks 3–10	50%
D7, D8, D9 – Final Guidelines, Implementation Roadmap & Final Report	Weeks 11–16	40%

6. Client Responsibilities

The NCA shall provide relevant laws, policies, environmental frameworks, and sector data; facilitate stakeholder engagement and logistical arrangements; and retain full ownership of all intellectual property arising from this assignment.

7. Required Experience: Firm and Core Team

Firm Requirements

- Minimum **five (5) years of experience** in ICT policy, regulatory, environmental sustainability, or related advisory services
- Proven experience in at least one similar assignment related to green ICT, environmental sustainability, or e-waste management
- Experience working with public sector institutions or regulators
- Familiarity with international best practices
- Experience in developing or emerging markets is an advantage

Key Experts

a) Team Leader/Senior Green ICT & Policy Expert

Qualifications:

A postgraduate degree in environmental policy, ICT policy, telecommunications, engineering, economics, sustainability studies, or a related field, with a minimum of seven (7) years of professional experience in ICT policy development, environmental sustainability, green infrastructure, or regulatory advisory services. The individual shall have demonstrated experience in leading national or sectoral policy, regulatory, or guideline development assignments, with strong leadership and project management skills. The Team Leader shall have successfully led at least two (2) comparable assignments related to green ICT, environmental sustainability, infrastructure policy, or e-waste management. Familiarity with international best practices and standards (including ITU, UNEP, ISO, GSMA, or similar frameworks) is required. Prior experience working with public-sector institutions or regulators, as well as stakeholder consultations in developing or emerging markets, is highly desirable.

b) Green ICT / Environmental Sustainability Specialist

Qualifications:

A postgraduate degree in environmental engineering, environmental science, sustainability, energy systems, ICT engineering, or a related field, with a minimum of five (5) years of professional experience in environmental sustainability, green infrastructure, energy efficiency, or climate-related ICT initiatives. The specialist shall have demonstrated expertise in energy-efficient ICT infrastructure, renewable energy solutions for telecom networks, data centers, or green technology practices. Familiarity with international standards and frameworks related to green ICT and environmental sustainability is required. Experience working with telecom operators, infrastructure providers, or regulators, as well as stakeholder consultations, is highly desirable.

c) **E-Waste Management Specialist**

Qualifications:

A degree in environmental management, law, public policy, waste management, or a related field, with a minimum of five (5) years of professional experience in e-waste management, environmental regulation, circular economy, or related policy and regulatory frameworks. The specialist shall have demonstrated experience in developing or reviewing e-waste management policies, guidelines, or regulatory instruments, preferably in the ICT or electronics sector. Familiarity with international conventions and best practices for e-waste management (e.g., the Basel Convention and Extended Producer Responsibility principles) is required. Experience supporting public-sector institutions or regulators, as well as stakeholder consultations, is an advantage.

8. Contracting and Reporting Arrangements

The Consultant shall report to the NCA through a designated focal point. Progress shall be monitored against agreed milestones. Deliverables may be presented physically or virtually.

9. Duration

The assignment shall be completed within **four (4) months** from contract commencement.