


**TERMS OF REFERENCE FOR PROVISION OF  
CONSULTANCY SERVICES FOR FEASIBILITY STUDY AND DESIGN  
OF E-WASTE INFRASTRUCTURES AND SYSTEMS FOR  
SUSTAINABLE MANAGEMENT OF WASTE FROM ELECTRICAL  
AND ELECTRONIC EQUIPMENT (WEEE) IN UGANDA**

<b>APRIL 2024</b>	SUSTAINABLE E-WASTE MANAGEMENT - FEASIBILITY AND DESIGN STUDY	
<b>Date</b>	<b>Reason for Issue</b>	
<b>Submitted by:</b>  <i>National Information Technology Authority Uganda (NITA-U)</i>  <i>Palm Courts; Plot 7A Rotary Avenue (Former Lugogo Bypass). P.O. Box 33151, Kampala- Uganda</i> <i>Tel: +256-417-801041/2, Fax: +256-417-801050</i> <i>Email: info@nita.go.ug Web: www.nita.go.ug</i>		

## **ABBREVIATIONS**

EACO:	East African Communication Organization
EPR:	Extended Producer Responsibility
EMPA:	Electronic Waste Management in Africa
ICT:	Information and Communication Technologies
KCCA:	Kampala Capital City Authority
MoICT&NG:	Ministry of Information Communication Technologies and National Guidance
NEC:	National Enterprise Cooperation
NEMA:	National Environment Management Authority
NITA-U:	National Information Technology Authority – Uganda
PRO:	Producer Responsibility Organizations
RCIP:	Regional Communications Infrastructure Project
UCC:	Uganda Communications Commission
UDAP:	Uganda Digital Acceleration Project

## **1.0 BACKGROUND AND INTRODUCTION**

### **Background**

In 2010, the National Information Technology Authority (NITA-U) was established under the Ministry of Information and Communication Technology in Uganda, following the enactment of the NITA-U Act in 2009. NITA-U's primary mission is to oversee and facilitate the development of information technology (IT) in Uganda, with a specific focus on advancing the nation's social and economic sectors. NITA-U offers a variety of IT services, including Infrastructure as a Service, IT security services, and IT technical and advisory support.

The Government of Uganda is currently implementing the Uganda Digital Acceleration Project - GovNet (UDAP-GovNet) with the financing from the World Bank. The UDAP-GovNet was conceived as a follow up project to Regional Communications Infrastructure Program (RCIP) Phase 5, which closed in August 2022. The UDAP-GovNet project addresses the challenges outlined in the 2016 Systematic Country Diagnostic (SCD) and is aligned with the 2016 Country Partnership Framework (CPF), which covers FY16-21. The proposed project is also aligned with Uganda's current National Development Plan (NPD III), which outlines objectives that can be promoted by the digital sector, and covers FY21-25. The UDAP-GovNet project is aligned with the World Bank Group's response to the COVID-19 pandemic by "securing foundations of the economy", and "strengthening policies and institutions for resilience", both key goals outlined in the Bank's response effort, "Building Back Better. The project also demonstrates substantial policy content by directly supporting the implementation of Refugee digital policies linked to employment and private-sector engagement. The project has the following components:

1. Expanding Digital Connectivity in Selected Areas
2. Enabling Digital Transformation of the Government
3. Promoting Digital Inclusion of Host Communities and Refugees
4. Project Management

The project design in components 1 and 3 included establishment of E-waste collection and management centers. The Electronic Waste (E-Waste) is defined as a generic term embracing various forms of electric and electronic equipment that have ceased to be of any value to their owners. Electronic equipment is defined as "a complex mixture of several hundred components many of which contain heavy metals and hazardous chemicals". As adopted from the Basel Convention.

Next to Global warming, E- Waste is a threatening problem in the world and Uganda in particular due to increased demand and supply of E- Products thus generating toxic waste which is hard to process especially in developing countries like Uganda.

## **Introduction**

The Government of Uganda in collaboration with the World Bank through the National Information Technology Authority Uganda (NITA-U) is implementing the Uganda Digital Acceleration Project (UDAP- Govnet) – P171305. This project aims to:

- (a) expand access to high-speed internet in selected areas,
- (b) improve efficiency of digital service delivery in selected public sectors, and
- (c) strengthen the digital inclusion of selected host communities and refugees.

As part of project design, the Uganda Digital Acceleration Program (UDAP), shall finance the construction of four (4) E-waste collection and management centers in the country, one (1) in each of the four regions. The location of two of these centers shall as much as feasible be within refugee hosting districts for job creation and entrepreneurial opportunities. The establishment of E-waste centers is in recognition to the current challenges in managing e-waste in the country and the likely increase in the volumes of e-waste generated from UDAP investments. The proposed centers shall ease collection, sorting, storage for proper management, for further refurbishing (when possible) and processing at recycling facilities. The growing amount of e-waste presents challenges to the ICT sector in Uganda. A survey conducted by the United Nations Environment Programme (UNEP) in 2017 demonstrates that the amount and flow of e-waste is rising fast, with a stock of e-waste estimated at 1,900 MT and growing by 25,000 tons annually. A recent study has projected that between 2018 and 2022, an average of 4,500 tons per year of e-waste will be generated from communications end user equipment only (phones, televisions, computers, and radios).

The Government of Uganda has made headway in efforts to manage e-waste in the country. The Ministry of ICT& National Guidance developed the e-Waste Management Policy for Uganda in 2012 and Guidelines for Management of e-Waste in 2016. These efforts translated in the National Environment Management (Waste Management) Regulations, 2020, which address e-Waste management.

In addition, NITA-U conducted an e-waste baseline survey in 2022 under RCIP to support the development of appropriate policy interventions for enhanced e-waste management in Uganda. The results of this survey shall also feed into this Program.

Based on the aforementioned NITA-U seeks to procure a consultant inform interventions into e-waste management in Uganda.

## **2.0 OBJECTIVE OF THE ASSIGNMENT**

The primary objective of this assignment shall focus on feasibility, design and business model of the E-waste centers and recommending sustainable management system/processes that need to be put in place during operation and it shall include the Waste Management Hierarchy and circularity as highlighted in section 77 of the National Environment Act, 2019.

## **3.0 SCOPE**

The purpose of the consultancy assignment is to establish and make recommendations on the sustainable management of e-waste in Uganda.

The assignment will involve a detailed study on the following:

- i. Prepare feasibility analysis and design the E-waste infrastructures.
- ii. Review of previous studies and carry out further consultation to identify possible site locations for establishing the four centers and any associated auxiliary facilities that supports operation of the E-waste centers.
- iii. Assess Environment and Social risks in parallel to the feasibility to inform design of the E-waste centers (sub-contracted to NEMA registered Environmental and Social Practitioners). This ESIA studies will be guided by World ESF requirements and National System specifically the National Environment Act No.5 of 2019, Environment (Environmental and Social Assessment) Regulations, 2020.
- iv. Provide detailed scalable architectural and cost design recommendations for the e-waste collection and recycling centers including equipment and installations.
- v. Explore and recommend Business model that's sustainable e.g. Explore potentially private sector participation in operating and managing the E-waste centers. This could include consulting with the current licensed waste hazardous waste handlers for possible partnership for the management of E-waste. Make recommendations for Resource mobilization, financing models and private sector involvement for sustainability.
- vi. Exploring Extended Producer Responsibility (EPR) which makes producers responsible for the end-of-life management of products they place in the market (Based on polluter pays principle). Explore collective responsibility models, the involvement of extended producer organization in line with section 98 of National Environment Act, 2019. Make proposals for sectoral or sub-sector Producer Responsibility Organizations (PRO) that encompass Extended Producer Responsibility (EPR).
- vii. Provide guidance on the establishment of record keeping system.
- viii. Based on E-waste management guidelines of 2016 and international best practice, provide Standard Operating Procedures (SOPs) for collection, transportation, storage and

management of the E-waste. Make recommendations for collection centers, storage centers, transportation, and responsible handling of the e-waste.

- ix. Consult with key stakeholders like NEMA, UCC and explore synergies with similar initiative under ministry of Energy, specifically, Energy Access Scale-up Project (EASP) respective local governments and any other.
- x. Conduct both regional and international benchmarking studies to inform the adoption of best practices in e-waste management.
- xi. Make recommendations on the sustainable disposal – Refurbish, Re-Use, Recycling Centers including MRF and e-waste de-carbonization. Cognizant of the Waste Management hierarchy in the National Environment (Waste Management) Regulations, 2020 and section 77 of the National Environment Act, 2019
- xii. Make recommendations for an appropriate E-Waste regulation /licensing scheme
- xiii. Recommendations for Monitoring compliance for the established e-waste centers to check compliance with environmental laws and standards

**a) Environmental and Social Assessment Scope**

- (i) Review and document land ownership including obtaining copies of the same from respective authorities.
- (ii) Assess other social and Economic and other activities on the land.
- (iii) Review and assess the space availability and suitability for the proposed facilities;
- (iv) Review of the existing e-waste management facilities within the country if any
- (v) Review and assessment of all anticipated environmental and social impacts of the proposed civil works and suggest viable/implementable mitigation measures;
- (vi) Review and assessment of anticipated environmental and social impacts during operational and maintenance phases
- (vii) Development of Environmental and Social Management Plans for each of the sites under study; The ESMP should be specific for different phases (construction, operation and maintenance)
- (viii) Review and drafting of E&S contract terms/conditions to be included in the BoQs, bidding documents and general contractors' contracts; and
- (ix) Demonstration for sustainability and transfer of knowledge.

Specific areas of interest shall include:

- (i) Waste generation and management
- (ii) Community and Occupational safety and health issues
- (iii) Legal compliance
- (iv) Institutional issues including consultations and participation
- (v) Aesthetic issues
- (vi) Stakeholder engagement, grievance redress mechanism, SEA, SH and their respective mitigation measures
- (vii) Management systems
- (viii) Sustainability plans

## **ESIA Report content**

The consultant(s) shall undertake the ESIA, and will produce Environmental and Social Impact Assessment Reports for each of the recommended site, which will have the following content:

- (i) An Executive Summary, stating the major findings of the study;
- (ii) Background information on the project location, project area of influence, planned extent, inputs, outputs (including waste), and operations, planned infrastructure/installations and timing, safety provisions;
- (iii) A clear methodology for establishing the baseline; and for identifying and evaluating risks and impacts;
- (iv) Site baseline bio-physical and socio-economic information, area infrastructure and activities;
- (v) A review of policies, laws, regulations and standards in relation to the proposed establishment including analysis of gaps between national and Bank ESS requirements, and measure to close the gaps, if any;
- (vi) Public consultations and disclosure, mentioning stakeholder concerns and developing measures to address them; The consultant shall provide a summary of issues raised by stakeholders during consultations and how the consultant responded; those that require NITA-U and MoICT-NG response shall be officially submitted early enough.
- (vii) Analyze site suitability, analysis of alternatives, including a multi-criteria comparison of feasible alternatives to the proposed project spot, technology, design, and operation—in terms of their potential environmental impacts, the feasibility of mitigating these impacts, their suitability under local conditions, and their institutional, training, and monitoring requirements;
- (viii) Recommendation of appropriate mitigation measures for all significant negative environmental and social impacts predicted and enhancement measures for the positive impacts including potential gaps in capacity to implement the measures and how such gaps can be addressed;
- (ix) A phased Environmental and Social Management and Monitoring Plan for negative impacts and assessing effectiveness of mitigation measures, performance targets, scheduling monitoring frequency and assigning responsibility; this would include measurable monitoring indicators, costs for the implementation of the proposed measures, practical management plans including checklists for monitoring and tracking the implementation of and compliance with the proposed mitigation measures during various phases;
- (x) Recommendations and conclusions regarding future operations of the proposed establishment as an environmentally and economically sustainable project.

The Consultant shall be required to consult with stakeholders deemed necessary to provide input into the assignment, including the National E-waste Steering Committee (MoICT, UCC, NITA-U, NEMA), with key Government Ministries, selected Municipalities/local governments, producers/manufacturers, Repair workshops, recyclers and informal sector and any other relevant stakeholders.

## **4.0 KEY DELIVERABLES AND REPORTING**

The expected deliverables for this assignment are detailed herein below. The deliverables/ outputs reports shall be submitted in hard copy (2 copies each – signed original and duplicate) and electronic format. The Consultant shall be required to submit electronic reports in MS Word, pdf files (secured) and presentations in MS Power Point. Reports shall be submitted in English only.

#### **4.1 Task 1: Inception Report**

Upon signing the contract, the Consultant shall be availed with information and other supporting materials that provide background data to support in the development of the draft inception report. This report will contain full details of the consultant's understanding of the assignment, methodology, assignment plan and associated resource requirements and timelines. subject to MoICT & NITA-U's approval.

The Consultant shall convene a meeting with the National Steering Committee through the MoICT &NG and NITA-U to review the draft Inception Report. The final inception report incorporating the stakeholder's comments shall be submitted 4 weeks after contract signing.

#### **Task 1 Deliverable:**

The consultant shall submit an acceptable Inception Report to NITA and MoICT&NG for approval.

#### **Task 2: Detailed Study on E-Waste load**

The consultant shall perform the following activities:

- a) Study the current national and regional e-waste load and capacity;
- b) Categorization of the e-waste load established in the categories of Temperature Exchange Equipment, Screens and Monitors, Lamps, Large equipment, small equipment, medical equipment, Military equipment, etc.
- c) Conduct both regional and international benchmarking studies to inform the adoption of best practices in e-waste management.
- d) Establish the current capacity and load in the region to inform the need for setup or collaboration of recycling centers.
- e) Make recommendations for collection centers, storage centers, transportation, and responsible handling of the e-waste.
- f) Make recommendations on the sustainable disposal – Refurbish, Re-Use, Recycling Centers including MRF and e-waste de-carbonization.
- g) Assessment of where e-waste centers are recommended to be established
- h) Conduct at least one stakeholder consultative/validation workshop
- i) Make proposals for sectoral or sub-sector Producer Responsibility Organizations (PRO) that encompass Extended Producer Responsibility (EPR) and Compliance monitoring.

#### **Task 2 Deliverable:**

Detailed Report on the E-Waste load and capacity detailing the variables above with recommendations on the implementation of e-waste management, PRO and EPR. National e-Waste atlas to show the load and capacity of e-waste management in the country.



Detailed Scoping Report and Terms of Reference for the proposed ESIA's for each of the site that would be recommended

### **Task 3: Proposal on Financing Models**

The consultant shall perform the following activities:

- a) Study the current national and regional e-waste financing models;
- b) Carry out both international and regional benchmarking studies to inform the financing models
- c) Make recommendations for Resource mobilization, financing models and private sector involvement for sustainability
- d) Make recommendations for an appropriate E-Waste regulation /licensing scheme

### **Task 3 Deliverable:**

Detailed report on financing and licensing models with recommendations for sustainability.

### **Task 4: Design of Collection and Recycling Centers**

The consultant shall perform the following activities:

- a) Study the current national and regional collection and recycling centers;
- b) Carry out both international and regional benchmarking studies on recycling centers
- c) Provide detailed architectural design recommendations for the collection and recycling centers.
- d) Provide SOPs for collection, transportation, storage and management of e-waste
- e) Make recommendations for sustainability model including working with the private sector.

### **Task 4 Deliverable:**

Detailed Design report on e-waste Collection and Recycling Centers including architectural drawings and designs with costs, ESIA Report, SOPs with recommendations for sustainability

Note that the ESIA report shall be site specific and one for each of the sites recommended and it shall precede the scoping Report and TOR approved by NEMA

### **Task 5: Develop Final Report and Designs**

The Consultant shall prepare and deliver to MoICT & NG and NITA-U a substantive and comprehensive final report of all work performed under these Terms of Reference.

**Task 5 Deliverable:**

1. Final report on entire assignment to be submitted in hard copy (2 copies– signed original and duplicate) and electronic format in MS Word, pdf files (secured) and presentations in MS Power Point.
2. Architectural Designs of the recommended collection and recycling centers.
3. The final ESIA Reports; one per recommended site

**Table 1: Deliverables and submission Timelines**

No.	Name of Deliverable	Contents of Deliverable	Timeline for Submission from date of contract effectiveness
1.	Inception Report	contain full details of the consultant’s understanding of the assignment, methodology, project plan, stakeholder engagement plan, project risk management plan, associated resource requirements and timelines	2 weeks
2.	Report on E-Waste load and capacity  Scoping Report and Terms of Reference for ESIA	Detailed Report on the E-Waste load and capacity detailing the variables above with recommendations on the implementation of e-waste management, PRO and EPR. A National e-waste atlas showing the load and capacity of e-waste management in the country.  The consultant shall submit a scoping report and terms of reference for an ESIA for each of the sites earmarked for e-waste management	3 weeks
3.	Business and Financing Model report	Detailed report on a business and financing model with recommendations for licensing scheme, resource mobilization and private sector involvement.	2 weeks
4.	Design report for Collection and Recycling Centers  Draft Environment and Social Impact Study Report (ESIS)	Detailed Design report on e-waste Collection and Recycling Centers including architectural drawings and designs, ESIA Report, SOPs for collection, transportation, storage and management of e-waste with recommendations for sustainability  The reports (one for each site) shall include assessment and identification of all anticipated environmental and social impacts; identifying both positive and negative impacts, providing enhancement measures for positive ones while providing mitigation measures for the negative ones, feasible EMSPs among others	2 weeks
5.	Final Report and Designs	Final report on entire assignment  Architectural Designs of the recommended collection and recycling centers.	3 weeks

	Final ESIA Reports	The report shall include assessment and identification of both positive and negative environment and social impacts of the project activities and recommended mitigation actions to avoid minimize and address the impacts. This shall include the response to comments following review by the client and the World Bank.	
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## 5.0 MINIMUM REQUIREMENTS OF THE CONSULTANCY FIRM

The consultancy firm should field a team of key experts as indicated below:

### 5.1 Team Leader

A team leader should be an Environmental or ICT expert possessing a combination of technical, managerial, and sector-specific qualifications in Environmental science, waste management or ICT. He/she should possess demonstrated knowledge in e-waste management, sustainability, environmental policy or similar fields.

#### Experience

- At least ten (10) years of industry experience in conducting studies on waste management, e-waste, policy development of related policies of similar scope and nature at national level.
- At least 5 (five) years' experience in the field of environmental management, electronic and solid waste management, pollution control. And related experience in feasibility studies, research, design, management, implementation and evaluation of e-waste management projects.
- Experience in working and coordinating with government agencies (central and local), civil society organizations, international organizations including a track record of successfully carrying out related or similar assignments in the last 5 years.

#### Qualification

- Should have a Master's degree in ICT/Electrical Engineering/Computer Science/Environmental or Natural sciences/General Science
- Training in e-Waste Management and related waste management fields

### 5.2 Rapporteur Expert

#### Experience

- Strong interpersonal skills and proven ability to respectfully and effectively liaise with diverse stakeholders.

- Strong communication skills (both orally and in writing), including ability to draft strategic documents and clearly present complex technical topics to diverse audiences.
- Proficiency in English is essential.
- At least 2 similar assignments.

### **Qualification**

- Should have a Degree in Communication, Social Sciences, Library Information Science, Information Technology or related area.

## **5.3 Expert in Policy and Strategy**

### **Experience**

- An expert/advisor with proven hands-on experience of at least 8 years in development of ICT policies, strategies and frameworks. The expert/advisor should possess skills in administration, planning, governance and public sector management or public policy and demonstrate practical implementation of the same.
- Experience in policy designing, planning and implementation inclusive policy dialogue and stakeholder engagement on issues relating to waste management

### **Qualifications**

- Bachelors' Degree in Public or Business Administration, Development Economics, a postgraduate qualification in Public Administration, Public Policy Management, or any other related field will be an added advantage.

## **5.4 Expert in e-Waste Management**

### **Experience**

- At least five years of experience in development of related policies of similar scope and nature at national level.
- An expert who is aware of global best practices of e-waste management, technologies and policies

### **Qualification**

- Should have a Master's degree in ICT, Engineering, Environment and Natural Resources Management, social sciences or similar degree in related field.

## **5.5 Business / Financial expert**

### **Experience**

- At least five years of experience in developing and implementing financial models, forecasts and budgets to drive growth and profitability
- Strong analytical capabilities and proven skills to deal with Financial Management issues innovatively and independently

### **Qualification**

- Should have a Master's degree in any of the relevant disciplines including: economics, planning, business.
- Post graduate training in business, economics or finance

## **5.6 ESIA Team Leader**

### **Experience**

Shall be a holder of a Graduate (Master's level) Degree in Environment, Natural Resources Management or related field and with at least ten 10years of experience in conducting Environmental and Social Impact studies (ESIAs) for development projects. Must be a Registered (ESIA team leader) Environmental Practitioner with NEMA. Knowledge of the World Bank Environmental and Social Framework, Environmental and Social Standards and previous experience on a World Bank funded project will be an added advantage.

## **5.7 Sociologist**

Must be a holder of Master's Degree in any of the following fields; sociology, social work and social administration, social sciences, development studies, anthropology or related fields with a minimum of 7 years of related experience. Knowledge of the World Bank Environmental and Social Framework and Standards and having worked on a World Bank funded project will be an added advantage. He or she must be a registered (ESIA Assessor/team member) with NEMA with passion and skills in gender analysis, stakeholder engagement and socio-economic surveys.

## **5.8 Occupational health and Safety Expert**

Must be a holder of bachelor's degree in relevant field but preferably environmental science/Occupational Health and Safety and or with additional training in occupation health and safety. He/she should have at least 4 years of post-university experience. He/she should have experience in ESIA, occupational health and safety, environmental and social monitoring or supervision.

Note that, ESIA key experts must be registered and certified by NEMA as practitioners in their respective fields of specialization.

The consultant can also enter into a joint venture (JV) with ESIA established firms with relevant firm experience in overall environmental management specifically in carrying out ESIA's for the last 5 years.

## **6.0 DURATION OF ASSIGNMENT**

The duration of the assignment is expected to be undertaken in an estimated period of three months from contract commencement.

## **7.0 REPORTING**

The selected consultant shall report to the both PS MoICT & NG and Executive Director – National Information Technology Authority - Uganda. In addition, the consultant shall be required to provide a weekly and monthly report detailing progress achieved and/or any difficulties encountered prior to providing the final project report.

Further information can be obtained at the address below during office hours from 08:00 to 17:00 hours East African Time (EAT) on working days and from the NITA-U website (<http://www.nita.go.ug>)

## **8.0 DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT**

The Client will provide the following information, data or reports:

- a) Electronic Waste Management Policy for Uganda (2012)
- b) Consolidated E-Waste Baseline Report
- c) Guidelines for e-Waste Management in Uganda, 2016
- d) EACO Regional E-Waste strategy, 2017
- e) Electronic Waste Management in Africa with a focus on developing countries - EMPA
- f) Electronic Waste management regulations - Kenya
- g) The Global Electronic Waste monitor, 2017

## **9.0 REQUIREMENTS FOR QUALITY PLANS**

The Consulting Firm will be required to demonstrate in their proposal, evidence of adoption of use of a Quality Management System and describe how quality control will be implemented in the course of the project.

## **10.0 KEYSTAKEHOLDERS**

The following are the key stakeholders:

- a) Office of the Prime Minister
- b) Ministry of ICT and National Guidance
- c) Ministry of Education and Sports

- d) Ministry of Water and Environment
- e) National Information Technology Authority – Uganda (NITA-U)
- f) National Environment Management Authority (NEMA)
- g) Uganda Communications Commission (UCC)
- h) Kampala Capital City Authority (KCCA)
- i) National Enterprise Cooperation (NEC)
- j) Telecom Service Providers
- k) Development Partners
- l) Electrical and Electronics Producers, Distributors, Sellers and Repairers
- m) Civil society
- n) Academia
- o) Local governments – including Environment Officers