



## **Midterm Review**

### **“Circular Economy Approaches for the Electronics Sector in Nigeria” (GEF ID 10141)**

**Independent Review of the GEF / UNEP Funded Project**

**BY MATHIAS AMUDA**

Report from July 2019 to September 2022

Project Number + Project Title		Circular Economy approaches for the electronics sector in Nigeria (GEF ID 10141)
Duration months	<i>Planned</i>	36
	<i>Extension(s)</i>	6 months (Amendment NO 1 in April 2022)
Executing Agency(ies)		National Environmental Standards and Regulations Enforcement Agency of Nigeria (NESREA)
Names of Other Project Partners		UNEP Resource and Market Branch
		EPRON
Project Type		MSP
GEF Focal Area(s)		Chemicals and Waste
UNDAF linkages		Outcome 9, Indicator 2 on hazardous waste management (Nigeria UNSDPF 2018-2022)
Link to relevant SDG target(s) and SDG indicator(s)		SDG target (1.5.2) & 12 (indicators 12.4.1, 12.4.2, 12.5.1)
Completion Date	<i>Planned</i>	30-Nov-22
	<i>Revised</i>	31 May 2023 (project completion is still Nov 22, but closure by 2023)

**Disclaimer text**

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## **Acknowledgements**

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## Abbreviations Table

LASEPA	Lagos State Environmental Protection Agency
LAWMA	Lagos Waste Management Authority
NARAP	Nigerian Association of Refrigeration and Air Conditioning Practitioners
NESREA	National Environmental Standards Regulations Enforcement Agency
UNEP	United Nations Environment Programme
VCS	Voluntary Carbon Standard
WEEE	Waste Electrical and Electronic Equipment
CRT	Cathode Ray Tube
EEE	Electrical and Electronic Equipment
EPR	Extended Producer Responsibility
FMENV	Federal Ministry of Environment
GDP	Gross Domestic Product
GEF	Global Environment Facility
ICT	Information and Communication Technologies
ILO	International Labour Organization
EPRON	E-waste Producer Responsibility Organisation Nigeria
ESM	Environmentally Sound Management
PEE	Personal Protective Equipment
PEU	Project Execution Unit
PIR	Project Implementation Review
PMC	Project Management Cost
POPs	Persistent Organic Pollutants
PRO	Producer Responsibility Organization
PSC	Project Steering Committee
RoHS	Restriction of Hazardous Substances
SAICM	Strategic Approach for International Chemicals Management (SAICM)
UEEE	Used Electrical and Electronic Equipment
BAT	Best Available Technology
BEP	Best Environmental Practice

## Executive Summary

The independent review of UNEP/GEF on Circular Economy approaches for the electronics sector in Nigeria (GEF ID 10141) was carried out in accordance with the project framework entitled “Circular Economy approaches for the electronics sector in Nigeria”.

**Table 1: Project General Information**

<b>1. Identification</b>		10141	<i>SB-012761</i>
Project Number + Project Title		Circular Economy approaches for the electronics sector in Nigeria	
Duration months	<i>Planned</i>	36	
	<i>Extension(s)</i>	6 months (Amendment NO 1 in April 2022)	
Division(s) Implementing the project		Economy Division, GEF Chemicals and Waste, Chemicals and Health Branch	
Name of co-implementing Agency		-	
Executing Agency(ies)		National Environmental Standards and Regulations Enforcement Agency of Nigeria (NESREA)	
Names of Other Project Partners		UNEP Resource and Market Branch	
Project Type		MSP	
Project Scope		National	
Region		Africa	
Countries		Nigeria	
Programme of Work		PoW 5: Chemicals, waste and air quality	
GEF Focal Area(s)		Chemicals and Waste	
UNDAF linkages		Outcome 9, Indicator 2 on hazardous waste management (Nigeria UNSDPF 2018-2022)	
Link to relevant SDG target(s) and SDG indicator(s)		SDG target (1.5.2) & 12 (indicators 12.4.1, 12.4.2, 12.5.1)	
GEF financing amount		USD 2,000,000	
Co-financing amount		USD 13,086,582	
Date of CEO Endorsement		7-Mar-19	
Start of Implementation		20-May-19	
Date of first disbursement		1-Jun-19	
Total disbursement as of 30 June		USD 1,018,356	
Total expenditure as of 30 June		USD 94,856	
Expected Mid-Term Date		1-Jan-21	
Completion Date	<i>Planned</i>	30-Nov-22	
	<i>Revised</i>	31 May 2023 (project completion is still Nov 22,)	
Expected Terminal Evaluation Date		30-Dec-22	
Expected Financial Closure Date		2023	



**Table 2: Sources of Co-financing**

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Investment Mobilized	Amount (\$)
Recipient Country Government	National Environmental Standards and Regulations Enforcement Agency of Nigeria (NESREA)	In-kind	Recurrent expenditures	9,025,000
Private Sector	Hinckley	Equity Investment	Investment mobilized	2,451,582
Private Sector	Hinckley	In-kind	Recurrent expenditures	1,000,000
Other	United Nations University	In-kind	Recurrent expenditures	610,000
<b>Total Co-financing</b>				13,086,582

**Table 3: Summary of Evaluation Rating**

Criterion	Summary Assessment
<b>A. Strategic Relevance</b>	
<i>2. Alignment to Donor/GEF strategic priorities</i>	S
<i>3. Relevance to regional, sub-regional and national environmental priorities</i>	S
<i>4. Complementarity with existing interventions</i>	S
<b>B. Effectiveness</b>	S
<i>1. Availability of outputs</i>	MS
<i>2. Achievement of project outcomes</i>	S
<i>3. Likelihood of impact</i>	S
<b>C. Financial Management</b>	
<i>1. Adherence to UNEP's policies and procedures</i>	S
<i>2. Completeness of project financial information</i>	S
<i>3. Communication between finance and project management staff</i>	S
<b>D. Efficiency</b>	S
<b>E. Monitoring and Reporting</b>	
<i>2. Monitoring of project implementation</i>	HS
<i>3. Project reporting</i>	S

<b>F. Sustainability</b>	
<i>1. Socio-political sustainability</i>	L
<i>2. Financial sustainability</i>	L
<i>3. Institutional sustainability</i>	L
<b>G. Factors Affecting Performance and Cross-Cutting Issues</b>	
<i>1. Preparation and readiness</i>	S
<i>2. Quality of project management and supervision</i>	HS
<i>3. Stakeholders participation and cooperation</i>	HS
<i>4. Responsiveness to human rights and gender equity</i>	S
<i>5. Environmental, social and economic safeguards</i>	S
<i>6. Country ownership and drivenness</i>	S
<i>7. Communication and public awareness</i>	HS
<b>Overall Project Rating</b>	<b>S</b>

## Project Description

The project, “Circular Economy approaches for the electronics sector in Nigeria” is Medium Size project funded by the Global Environment Facility (GEF), implemented by UNEP and the National Environmental Standards and Regulations Enforcement Agency of Nigeria (NESREA) as the Executing Agency.

The funding for this project comes from GEF funds (USD2, 000,000) and a public and private sector counterpart of (USD13, 086,582) for a total budget of USD15, 086,582

The project is completely steady with the GEF focal area strategy of Sub-Indicators under Core indicator 9:

Indicator 9.1, Solid and liquid Persistent Organic Pollutants (POPs) and POPs containing materials and products removed or disposed: the project is to collect 3 tons of plastics contaminated with Hexa-Heptabromodiphenyl ether

Indicator 9.2: Quantity of mercury reduced: the project is to collect and dispose of 30 tons of cathode ray tube (CRT) lead glass contaminated with mercury

Indicator 9.3: Number of countries with legislation and policy implemented to control chemicals and waste: 1 country will fully apply its existing EPR legislation and register producers.

The overall project objective is to adopt a financially self-sustaining circular economy approach for electronics, through which electronics producers and waste managers recover and reintroduce usable materials into the electronics value chain and dispose of hazardous waste streams in an environmentally sound manner. The Medium Size Project comprised of four substantive outputs:

Output 1: The Government of Nigeria and Producers jointly implement the EPR legislation for e-waste

Output 2: 300 tons of e-waste are collected through formalized collection channels that minimize environmental and health impacts

Output 3: Establish cost-effective recycling facilities and disposal systems for various e- waste categories

Output 4: Circular economy model for the electronics sector in Africa and globally. The initial project duration was 36 months with the official Expected Implementation start date of March 2019 and the expected Completion date March 2022. However, due to Covid-19 pandemic that caused delay and shutdown the implementation of the project activities, was extended and planned to be closed by February 2023.

#### **Summary of Conclusions, Recommendations and Lessons Learned Main Findings**

1. The Project objective and its execution results are in line with objective of the project and UNEP and GEF strategic priorities.
2. The executing agency, NESREA and other stakeholder involvement, particularly, LAWMA and LASEPA were well coordinated from the take-off of the project. The Project Execution Unit (PEU) in its coordination efforts made some necessary adjustment especially with integration of the informal collector into formal collectors after the PEU was able to correct this situation; there were substantial improvement on the part of all the project phases.

3. The PEU employed adaptive change management strategy correctly in the planned change from trying to integrate the informal e-waste collectors to the formal e-waste collectors.
  4. Women's participation / empowerment were visible in the project, with the training and awareness carried out where the women participated actively.
  5. The project committed co-financing (USD 13,086,582). This is the result of the stakeholder's ownership of the project and the results obtained.
- ❖ Considering all the restrictions from the COVID-19 Pandemic, the project has been able to continue its work toward the fulfilment of its objective. In this midterm review, the results respond to the objective and the expected results.
  - ❖ The work done within the test pilot of the e-waste collection and recycling centres are key element for the project sustainability.
  - ❖ The protective measures to secure the reduction of the impact from improper management of e-waste are being directed to cater for the upgrade of collection centers and support the disposal and safe treatment of hazardous fraction including the payments of incentives to informal collectors, who directly work with the collection centres.
  - ❖ Gender equality and women's empowerment efforts are not only in the involvement of women in the project activities, but also, when it comes to project that includes issues that are part of women's daily lives and produce results that contribute to their welfare and sustainability, the results have a more lasting effect. The project has 27 % women participation which are mainly collection, sorting/organization of the e-waste as well as administrative responsibilities. 5 of the 30 operators of the collection centres are women proprietors who got engaged in e-waste collection as a result of the project.

#### **Recommendations:**

- The price tag allocated per item (e-waste) should be reviewed to compete with the open market price.
- The project team in Nigeria, led by NESREA, should follow-up to ensure that all collection centres supply the e-waste target allocated to them.
- There is need to improve the efficiency of the payment system by reviewing the bureaucracy to respond to the objectives and timeliness required by the project.
- The project team should continue to monitor the upgrade being executed by the collection centres to ensure they meet the minimum requirement specified in the terms of reference for the contract.
- Ensure the recycling firms speed up the process of recycling.
- Ensure recycling data collected are in line with indicators supporting environmentally sound management.
- More awareness campaign should be carried out to Lagos on the project and its benefit
- NESREA should intensify effort in facilitating the process of gazetting the reviewed national environmental regulations on the electrical electronics sector.
- NESREA should organize consultative meeting with corporate entity such as Banks,

telecommunication company, etc. to educate them on the GEF project and the need to subscribe to the circular economy approaches thereby making available their e-waste to the collectors accredited by NESREA.

### **Lessons Learned**

- Existing pricing should not be interfered with, especially in an economy with rising inflation.
- Upgrading facility of the collection centres improves the adoption of sound environmental management.
- Incentives for a project of this nature should focus on capacity building and upgrading of facilities to meet international best practices.
- Payment system for contractors and other activities should be designed to respond to the objectives and timeliness required by the project.
- The project approach which established the e-waste collection centres to serve as a form of transfer station for evacuation by the recycling companies provided a sustainable business relationship among key players.
- The concept of transportation logistics being managed by the recyclers for evacuation of e-waste from the collection centres reduced the burden of the centre operators in moving the e-waste to the recyclers.
- Regular capacity building and consultation can significantly improve compliance rate as observed in the operations of the recyclers, centre operators, and the informal collectors.
- Women have demonstrated exceptional ability to excel in the e-waste business. This was observed in house to house strategy adopted by some of the women in engaging their local community to subscribe to the circular economy approaches.

# 1 Project Overview

## 1.1 Institutional context within UNEP: Environmental, Socio – Economic, Institutional, and Policy Factors Relevant to the Project Objective and Scope

### **Institutional framework and governance sustainability**

NESREA as the project executing Agency, has responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general and environmental technology including coordination, and liaison with, relevant stakeholders within and outside Nigeria on matters of enforcement of environmental standards, regulations, rules, laws, policies and guidelines.

Prior to the project, NESREA had developed and operationalized the National Environmental (Electrical / Electronic Sector) Regulations in 2011, and other extant regulations with direct implications on the Extended Producer Responsibility Programme of the Agency.

The project on the Circular Economy Approaches for the Electronics Sector in Nigeria supported the review of the National Environmental (Electrical / Electronic Sector) Regulations 2011 to reflect the circular economy approaches to managing electronic waste as against the former which was linear economy approaches.

The Agency has a field office in the pilot state of Lagos and across other states of the federation. The NESREA Act empowers the Agency to be responsible for enforcing all environmental laws, guidelines, policies, standards and regulations in Nigeria, as well as enforcing compliance with provisions of international agreements, protocols, conventions and treaties on the environment to which Nigeria is a signatory.

In ensuring the sustainability of the project is further strengthened, NESREA has collaborated with the Lagos State Environmental Protection Agency (LASEPA), Lagos State Waste Management Authority (LAWMA) and E-waste Producer Responsibility Organisation Nigeria (EPRON) in the execution of the GEF funded project. Each of the organizations, have made the project part of their routine operations.

The project team has organized several capacity building workshop for the recyclers, collection centre operators, informal collectors, corporate organizations and government agencies to fully appreciate the concept of circular economy and best environmental practice.

The facility of the recyclers, collection centre operators, informal collectors were upgraded. The informal collectors were formalized in to a corporative. Incentives are provided for waste collected as well as complete PPE kits issued to them.

This review work gives this aspect a **likely (S)** rating.

## 1.2 The Problem/Issue the Project Aims to Address

Nigeria is a recipient of significant quantities of used electronics from the west filling its repair capacity and raw material demand. There are two sectors managing E-waste in the country, the formal and the informal sector.

Most of the e-waste is processed by the informal sector. Improper recovery procedures result in emissions of UPOPs and POPs posing a threat to the health of e-waste collectors/processors, local communities and the global environment. Inadequate electronic waste processing facility results in POPs emission resulting from the burning of cables or plastic metal mixes, or printed circuit boards and plastics.

The most important problems to be addressed by this test pilot scheme project is to reduce emissions from the following activities that must be eliminated and controlled through the project implementation.

- ❖ Open burning of e-waste for material recovery (e.g. cables)
- ❖ Open burning of e-waste for waste minimization (typically plastic casings and circuit boards).
- ❖ Shredding, melting and extrusion of e-waste
- ❖ Uncontrolled burning of circuit boards
- ❖ Dumping of residual materials

It is expected that the proposed project will be able to reduce the amounts of UPOPs emitted from the improper treatment of E-waste. Through replication and adoption of Best Environmental Practice (BEP) and Best Available Technology (BAT) at all levels both by the informal and formal sector.

A second important problem to be address by this test pilot scheme project is generators of heavy metals such as lead, cadmium and mercury due to inadequate processing of electronic products and wastes. These heavy metals impact the environment and human health with multiple serious health effects.

## 1.3 Project Parameters (Start and Duration of the Project, including Milestones)

The initial project duration was 36 Months with the official start date of 20<sup>th</sup> May, 2019 and the expected close date of the project is 30<sup>th</sup> November, 2022. However, due to Covid-19 pandemic that caused delay and resulting in stoppage of the implementation of the project activities, the project was extended by 6 months (Amendment NO 1 in April 2022) and planned to close by 31<sup>st</sup> May, 2023 (project completion is till Nov 22, but closure by 2023).

Originally, the project was designed to be completed within 36 months with a total budget of USD\$ 15,668,000.00 of which GEF contribution of USD\$ 2,000,000.00 and co- financing of USD 13,086,582 provided by the government of Nigeria and the private sector. Co-finance commitment letter was provided by NESREA, Hinckley Recycling, EPRON, UNU and UNEP.

The project is targeted at transforming the challenge of a growing production of electronics waste into an opportunity. It aims to promote a circular economy for electronics in Nigeria in which the electronics sector recovers and reintroduces usable materials into the value chain and disposes of hazardous waste streams in an environmentally sound manner.

This project has 4 components:

- i. Implement the Extended Producers Responsibility legislation for electronics, by jointly defining a roadmap for Nigeria.

- ii. Collect 300 tons of e-waste through formalized collection channels that minimize environmental and health impacts.
- iii. Develop a cost-effective recycling and disposal systems for various e-waste categories, achieving the target of recycling the collected 300 tons of e-waste.
- iv. Develop regional and global knowledge exchange on circular economy model for the electronics sector.
- v. Extract the following:
  - a. 10.8 kg of precious metals (Ag, Au, Pd);
  - b. 150 tonnes of common metals (Fe, Al, Cu);
  - c. 90 tonnes of plastics re-entering the value chain;
  - d. 30 tonnes of CRT lead glass and 3 tonnes of other hazardous fractions (CFC contained foams, mercury, batteries, flame retardants and POPs containing plastics) are safely stored or treated by Environmentally Sound Management (ESM) facilities; and
  - e. collect 3 tonnes of plastics contaminated with HexaHeptabromodiphenyl ether.
  - f. treat and safely disposal hazardous fractions



## 1.4 Project Results Framework

The effect of COVID-19 restrictions and limitations were not previously identified. The assumptions and risks identified in the results-based framework and in the project document section were consistent with the implementation reality found.

Outcome/ Output	Indicators	Baseline	Targets and Monitoring Milestones	MTR Outcome	Means of Verification	Remarks
The electronics sector recovers and reintroduces usable materials into the value chain and disposes of hazardous waste streams in an environmentally sound manner.	1. Tonnes of recyclable material which are recovered and re-entering the value chain locally and internationally.	0 tons of recyclable material are recovered by the EPR program	10.8 kg of Bprecious metals (Ag, Au, Pd), 150 tonnes of common metals (Fe, Al, Cu), 90 tonnes of plastics re-entering the value chain from 300 tonnes of collected e-waste	Sorting and dismantling of 63 tons of e-waste collected has commenced. No fractions have been extracted	Report received from recyclers and physical inspection.	Risk: Competition from the informal sector for collection
	2. Tonnes of hazardous fractions from e-waste which are safely disposed of, treated or channelled to appropriate treatment facilities	A small portion of the e-waste is collected and 200 tonnes recycled in 2017 by 2 recyclers registered by NESREA while the majority is recycled by the informal sector unsustainably and without safeguards	30 tonnes of CRT lead glass, and 3 tonnes of other hazardous fractions (CFC contained foams, mercury, batteries, frame retardants and POPs containing plastics) are safely stored or treated by Environmentally Sound Management (ESM) facilities	0 tonnes of CRT lead glass, and 0 tonnes of other hazardous fractions (CFC contained foams, mercury, batteries, frame retardants and POPs containing plastics) are safely stored or treated by Environmentally Sound Management (ESM) facilities	Basel destruction certificates	ESM facilities are not available in Nigeria, and hazardous fractions need to be exported for environmentally sound treatment. Export is yet to take place
Output 1. The Government of Nigeria and Producers jointly implement the EPR legislation for the electronics sector	3. Number of e-waste producers registered in Extended Producer Responsibility (EPR) programs PROs	Nigeria has EPR legislation but no detailed roadmap. Currently being implemented by NESREA as a voluntary initiative. PRO is legally established but with no registered members or systems e.g. registration database or staff.	Year 2019 – 20 producers join EPRON  Year 2022 – 22 producers join EPRON	As at MTR date 28 producers have joined EPRON.  Inspectors trained and actively promoting EPR.	PRO database	NESREA is committed to enforcing the EPR legislation and integrates the agreed roadmap into its annual work and budget planning. Groups of producers establish PROs and cover costs until levy is established and generating revenue.

Outcome/ Output	Indicators	Baseline	Targets and Monitoring Milestones	MTR Outcome	Means of Verification	Remarks
	4. Amount of levy (USD) collected by PROs	No levy is collected towards any producers in Nigeria	Roadmap published & database established.	Roadmap published & database is 75% ready to be launched. 0 USD of levy is committed by PRO	Publication/PRO database	EPRON is fully functional but yet to commence levy of producers through the PRO database.
Output 2. 300 tons of e-waste are collected through formalized collection channels that minimize environmental and health impacts	5. Number of collection channels and points created within the EPR program	National estimated collection rate of e-waste is 52%. Lagos has two formal collecting organizations, LAWMA and LASEPA.	Year 3 – 150 producers have joined the EPR programs.	30 collection points and channels are established for the EPR program, with communication package in place	Contract Agreement	NESREA to support the communication to and education of consumers
	6. Number of collectors gaining employment in the formal sector or with improved conditions in the informal sector (male/female)	Operational guidelines by NESREA exist ILO Programme on formalization – Decent Work in e-waste sector Various projects exist on informal sector	Inspectors trained and actively promoting EPR.	Minimum of 156 collectors employed /contracted by collection channels of the EPR program, 27% female.	Facility register	Risk: Inability of the formalized sector to absorb and integrate informal collectors. The program commenced with 320 informal collectors employed with 33% female.
	7. Amount of e-waste safely collected and delivered to ESM facilities	540,000 tonnes e-waste estimated collected in Nigeria in 2010 by the informal sector. 0 tons of e-waste collected by the formal organizations in Lagos.	Year 1 – level of levy calculated	63 tonnes of e-waste are collected and delivered to ESM facilities by the EPR program	Acknowledge invoice issued by recyclers to collectors	Awareness change in and engagement of consumers to ensure delivery of products to formal collection channels
Output 3 Establish cost-effective recycling and disposal systems for various e-waste categories	8. Number of recycling centres established for ESM treatment enforcing EHS standards	2 formal recyclers for ESM of limited electronics types operational and licensed by NESREA since 2016 (Hinckley Recycling and E-Terra Technologies Ltd.)	Year 3 – 100,000 USD of levy is committed	2 pre-treatment and/or recycling centers are set up and fully operational for 6 categories of e-waste selected for the project	Environmental permits issued by NESREA/ contract agreement	Pre-processing facilities are established as in-kind contribution from recycling companies. Facilities are supported with recycling fee
	9. Number of formal recycling workers gaining employment (male/ female)	0 formal recycling workers employed by the EPR program	Minimum of 30 collection points and channels are established for the EPR program, with communication package in place	156 formal recycling workers employed in the context of the EPR program, 27% female	Contracts	Risk: Recyclers choose to prefer B2B model due to greater revenue and profit.

Outcome/ Output	Indicators	Baseline	Targets and Monitoring Milestones	MTR Outcome	Means of Verification	Remarks
	10. Tonnes of e-waste collected and hazardous components safely stored pending disposal	No system existing to collect or export hazardous fractions for safe trip treatment	Minimum of 50 collectors employed or contracted by collection channels of the EPR program, 30% female	63 tonnes of waste collected hazardous components segregated	Storage facility and records	M&E to track the hazardous wastes and ensure they are securely stored until disposal time.
Output 4 Regional and global knowledge exchange on Circular economy models for the electronics sector	11. Number of global companies financially supporting establishment of PROs in Africa	Partnership on Accelerating the Circular Economy (PACE) network and Alliance members have initiated PRO in Nigeria	300 tonnes of e-waste are collected and delivered to ESM facilities by the EPR program	0 number of global companies including member companies of PACE supporting PROs in Africa	EPRON	Global companies are yet to participate Local companies freeloading
	12. Number of users accessing success cases via the KM platform	Tehnical guidance and briefings exist on circular approaches but limited publications on successful experiences by value chain actors	2 pre-treatment and/or recycling centers are set up and fully operational for at least 3 product categories	0 number of success cases on circular electronics	Case study publications and website statistics	Limited engagement of global brands in changing upstream chemicals and other sustainability management approaches.

**Table 4: Summary of logical framework evaluation**

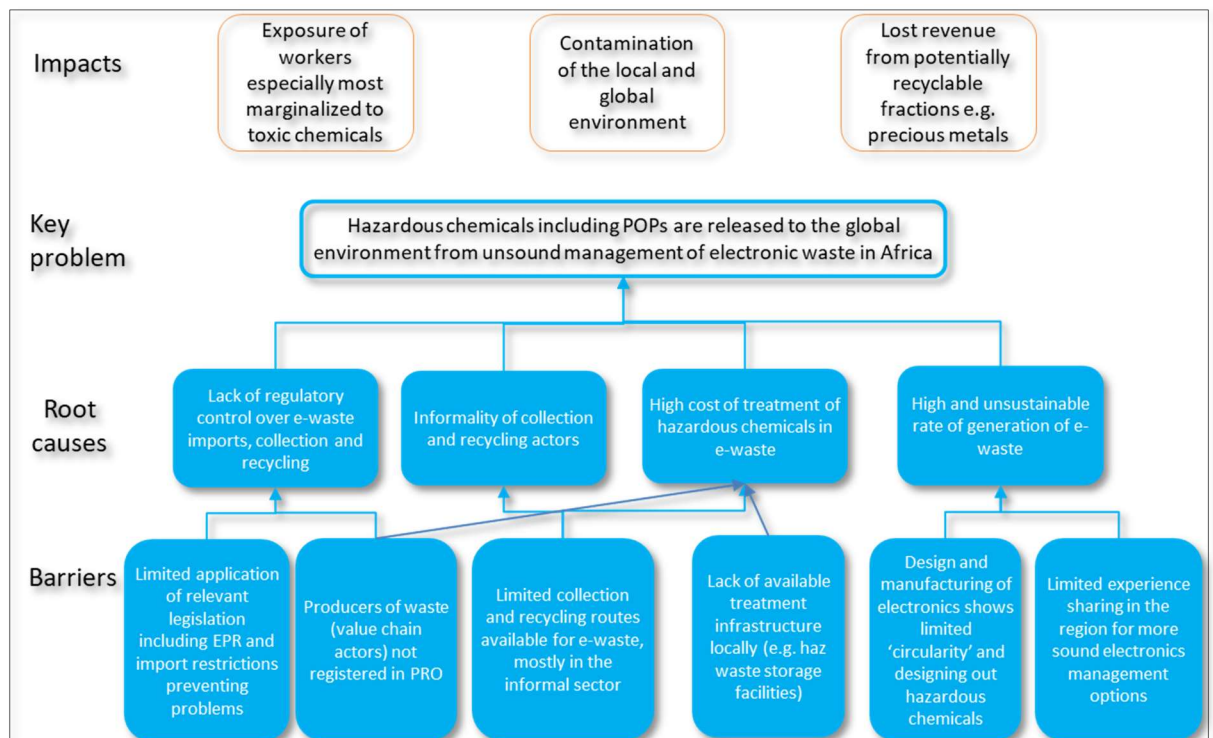
### **Theory of Change for E-waste**

- The rapidly expanding electronic waste with poor e-waste handling / segregation practices
- Increase of emissions of POPs and heavy metals from unsound and inadequate disposal with municipal wastes, where there is open burning.
- POPs (PCDD, PCDF and PBDE) emissions from shredding and burning of cables/plastic metal mixes
- No actual information on volumes of used electronics imported
- Important release of heavy metals (Hg, lead, cadmium)
- Information to mapping of E-waste recyclers/processors limited
- Local capacity of environmentally sound E-waste management limited
- E-waste volume increasing rapidly
- Licensing for E-waste managers is weak
- Informal E-waste recyclers compete with formal E-waste managers for better pricing

### **1.4 Solutions/Outcomes**

- ❖ E-waste processors informal and formal are mapped
- ❖ POPs and POPs emissions reduced
- ❖ Institutional capacity building improved
- ❖ BAT/BEP guidelines demonstrated and implemented
- ❖ Enhanced legislative and policy framework
- ❖ Emissions of Hg, lead and cadmium reduced
- ❖ Informal collectors and recyclers make transition to formal sector through licensing

Figure 1: Theory of Change

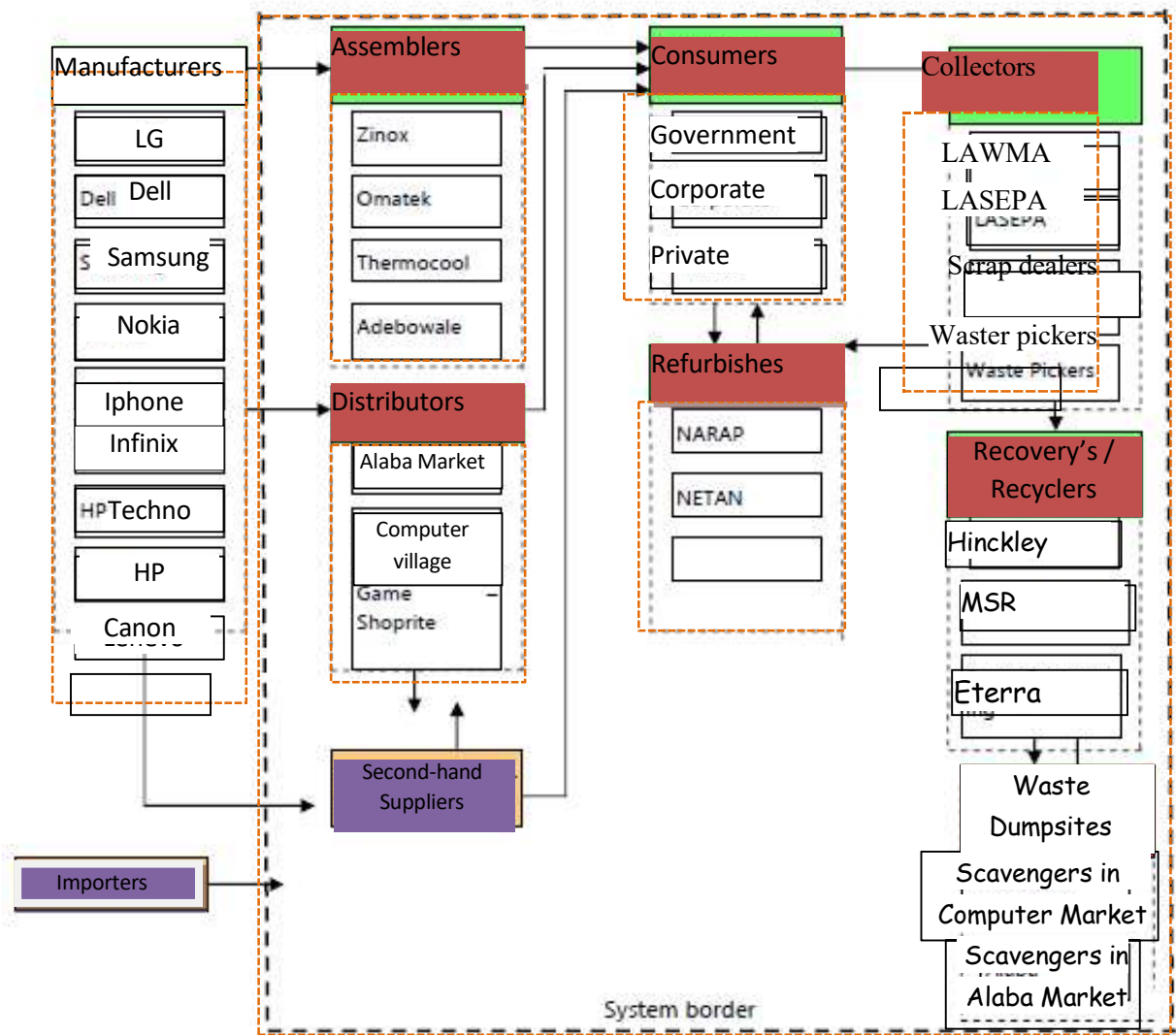


1.5 Target Groups / Stakeholders

During the project design process, different stakeholders, such as public regulatory institutions, private and public sector, formal and informal e-waste users, were consulted to ensure a more comprehensive approach due to the complexity of the expected goals. In the design process, the roles and responsibility of each interested party were agreed during the implementation of the project. The following table defines these roles and responsibilities.

Figure 2: Stakeholders Overview

The actors involved in the e-waste flows in Nigeria are shown in the Figure 6.1 below.



**Table 5: Stakeholders and Relevant Roles Government Agencies**

Stakeholders	Key function and mandate	Relevant Common responsibility and duties
<b>NESREA</b>	National Environmental Standards and Regulations Enforcement Agency of Nigeria is the regulatory body.	<p>Formulating environmental policies.</p> <p>Preparing the necessary plans for Environmental protection and Environmental development projects, following up their implementation, and undertaking Pilot Projects.</p> <p>The Agency is the National Authority in charge of promoting environmental relations between Nigeria and other States, as well as Regional and International Organizations.</p> <p>In charge of Stockholm Convention and Basel Convention Implementation.</p>
<b>NESREA / PSC</b>	Project Steering Committee	Executing Agency and Member of the Project Steering Committee as Government focal point for UNEP development projects.
<b>PEU</b>	Inspection and Enforcement Monitoring Unit Project Execution Unit	<p>In charge of administrative aspects of the test pilot scheme; facilitating the development and implementation of Circular Economy approaches for the electronics sector in Nigeria.</p> <p>Coordination of establishment, operational of waste collection and recycling centres at different level; ensuring adherence to national standards related to the management and treatment of E-waste; and monitoring of E-waste collection centres and recycling centres; Inspection and Enforcement Department enforces compliance and regulatory rules governing the e-waste handling;</p>
<b>LAWMA</b>	Lagos Waste Management Authority (LAWMA)	In charge of operational collection and disposal of e-waste in Lagos State
<b>LASEPA</b>	Lagos State Environmental Protection Agency (LASEPA)	An implementing organ of the Lagos State's policies on the environment,
E-waste recyclers	Hinckley Recycling and Eterra Technologies Ltd	Operate in the business of collection and recycling of WEEE, under official license issued / under issuance by NESREA
formal collectors	Groups of waste collectors like the MRI,	Collect different waste streams with different modalities (environmentally safe) and from different sources, and convey it to the selected officially license recyclers issued / under issuance by NESREA for further processing.

	CNSSL, Obanijesu, JDP, and SLC etc.	
informal collectors and/or recyclers	Groups of waste collectors/ recyclers like Scavengers	Collect, recycle and place on the market different waste streams with different modalities (often environmentally unsafe) and from different sources. In few cases organizes themselves into legal entities.
Repairs	Side road repairers	Collect and place on the market used EEE and remover some components for fix repairable ones.

### Project Finance and Co-finance

Financial management was a responsibility that the project Execution unit carried out, with the approval of the Project Management, and under GEF/UNEP budgetary protocols. The implementation of the budget, provided by the 2022 PIR and the PEU, indicates that 90% of the budget was executed.

**Table 6: Project co-financing summary**

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount (\$)
<b>Recipient Country Government</b>	National Environmental Standards and Regulations Enforcement Agency of Nigeria (NESREA)	In-kind	Recurrent expenditures	<b>9,025,000</b>
<b>Private Sector</b>	Hinckley	Equity Investment	Investment mobilized	<b>2,451,582</b>
<b>Private Sector</b>	Hinckley	In-kind	Recurrent expenditures	<b>1,000,000</b>
<b>Other</b>	United Nations University	In-kind	Recurrent expenditures	<b>610,000</b>
Total Co-financing				<b>13,086,582</b>



## 2 Review Methods

The scope of MTR was to review the design, implementation and project results achieved, structured around the criteria of Relevance, Effectiveness, Efficiency, Results and Sustainability.

To develop this midterm review, a mixed methods approach was used, adopting a combination of elements of qualitative and quantitative evaluation methods and instruments. These methodologies maximized the variety of information sources which allows more complete picture than a standalone quantitative or qualitative study, as it integrates benefits of both methods

The tools used to collect the relevant data are:

**Document Review:** A desk review of all relevant documents covering project design, implementation progress, and monitoring were reviewed as shown in table. The full list of revised documents is contained in Annex 1.

**Interviews with stakeholders:** structured interview were conducted with key Stakeholders. The interview findings were considered valid when they were re-affirmed by different stakeholders. This way triangulation was ensured.

Site inspection/interview for recycling and collection centres took place on Monday 5 September, 2022 to Friday 16 September, 2022. It was focused on reviewing the implementation of the project in terms of the input and output recorded. The thirty (30) collection centres and the two (2) companies were visited. The interview (Annex 2: List of officially Selected and Licensed Collectors and Recyclers interviewed) were conducted in person and based on site-specific visit. The list of stakeholders interviewed was supplied by the PEU.

## III. Review Findings

### A. Strategic Relevance

The reduction in the release of global pollutants (POPs, mercury and chemicals addressed under SAICM) into the environment from the unsound handling and management of e-waste. The co-benefit of this reduction includes a reduction in impacts on vulnerable populations engaged in the sector and reducing the contamination of air, land and water at local and global level.

Nigeria is facing the threat of becoming a dumping site for e-waste from developed countries. Over half a million tonnes of discarded appliances are processed in the country every year, threatening both the health of people in the informal recycling industry and the nation's environment. With backing from the Global Environment Facility, the Government of Nigeria has joined forces with UN Environment and partners to turn the tide on e-waste, under the Circular Economy Approaches for the Electronics Sector in Nigeria project.

The intervention by Global Environment Facility is stimulating the development of a sustainable circular economy for electronic products in Nigeria by supporting the E-waste Producers Responsibility Organization (EPRON) – a key initiative of the Government of Nigeria to promote sustainable production and consumption by encouraging producers to take responsibility for the entire lifecycle of their products.

The implementation of this project has set the road map for the implementation of the extended producers' responsibility project in the electronics sector. The concept of the circular economy approaches of the project has been reflected in the draft review of the national electrical electronics regulations which before now emphasis on linear economy approaches.

The project has brought together players along the electronics value chain (from government, the private sector and civil society) to kick-start a financially self-sustaining circular economy approach for electronics in Nigeria, protecting the environment while creating safe employment for thousands of Nigerians. It connects with stakeholders along the global electronics value chain to bring forward recommendations on product design for circularity. The project is targeted at transforming the challenge of dealing with a growing production of electronics waste into an opportunity and aims to promote a circular economy for electronics in Nigeria in which the electronics sector recovers and reintroduces usable materials into the value chain and disposes of hazardous waste streams in an environmentally sound manner. It is intended to provide a blueprint for replication across other African countries.

The strategic relevance is Highly Satisfactory (HS).

## B. Effectiveness

The Review assesses effectiveness across three dimensions: delivery of outputs, achievement of project outcomes and, where appropriate and feasible, likelihood of impact. At the mid-point more emphasis is placed on performance at the output and outcome levels, but observations about likelihood of impact may be helpful for correction or adjusting the emphasis of the project's efforts. The effectiveness is moderately satisfactory.

**Table 7: Effectiveness**

Contract	Deliverables	Outputs	Outcome
EPR Guidance Consultant	Guidance document on implementing the Extended Producer Responsibility policy of the electronics sector in Nigeria; and National EPR Legislation	<ul style="list-style-type: none"> <li>Guidance document is now an official gazette and in use;</li> <li>National EE Sector Regulations has been reviewed, amended, is now an official gazette, printed by the Federal Government Printers and posted on the Agency's website</li> </ul>	<ul style="list-style-type: none"> <li>Guidance document is available and now in use by NESREA and other regulatory agencies for environmental compliance monitoring</li> <li>Recyclers, Collectors and key stakeholders such as EPRON now operate with reference to the document</li> <li>The draft review of the National EE Sector Regulations created an opportunity for key Stakeholders to understand the changes and compliance expected when gazetted.</li> </ul>
Feasibility Study for collection and Recycling	<ul style="list-style-type: none"> <li>Mapping of Lagos for establishment of 30 collection centres.</li> <li>Providing different collection scenarios and</li> </ul>	Report of feasibility study submitted.	The report of feasibility study provided the basis for the establishment of 30 collection centres in Lagos.

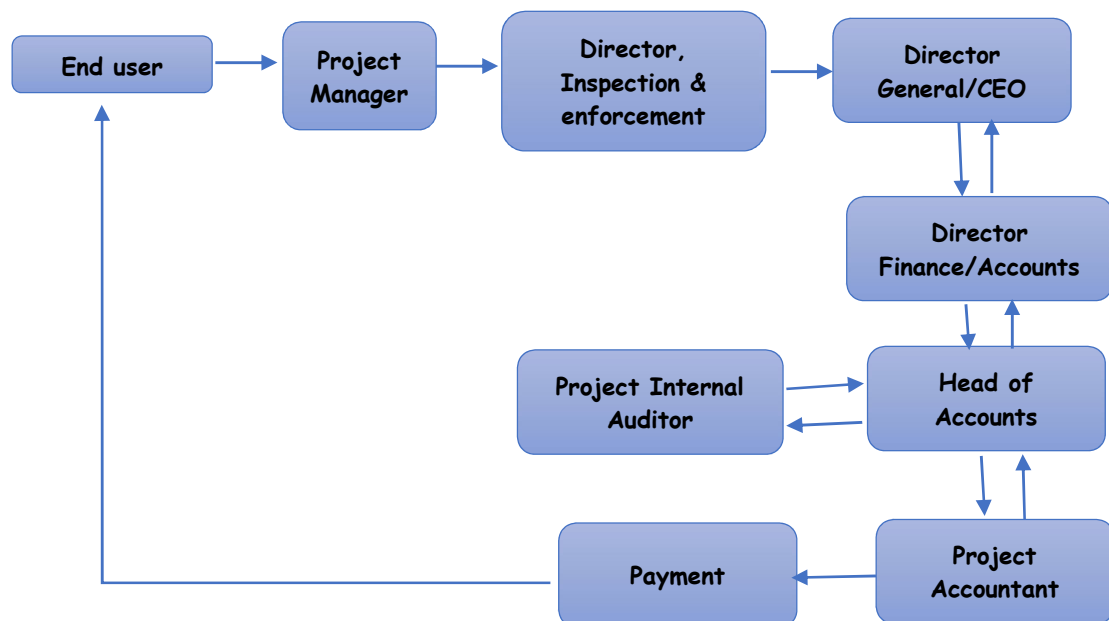
	identify international examples for possible domestication during and after the project timeline.		
Gender consultant	Incorporate and strengthen gender elements in the GEF project, including the Integrated Approach Pilots	Report submitted by consultant in line with ToR.	Gender consultant report was mainstreamed into the project implementation including contracts and operations of the recyclers and collectors.
Levy consultant	Levy estimate for a financially self-sustaining EPR program, for at least 6 product categories	<ul style="list-style-type: none"> <li>• Developed levy calculator;</li> <li>• Developed a guidance document to define the details of the fund management for the EPR system.</li> </ul>	levy calculator has been incorporated in to PRO Database. The guidance document developed supported the Database developer and will continue to be in use for understanding the calculator especially by the Producers and EPRON.
Disposal market study	Support for the establishment of cost-effective recycling facilities and disposal systems for various e-waste categories	<ul style="list-style-type: none"> <li>• Data on treatment cost, economic performance of the 300-tonne pilot and information relating to the informal sector collected and report submitted by consultant</li> <li>• Compilation of monitoring of actual cost of collection is ongoing.</li> </ul>	Data on treatment cost, economic performance of the 300-tonne pilot and information relating to the informal sector were utilized by the levy consultant to develop the levy calculator.
WEEE Forum	provide technical assistance for the project	Technical support received from WEEE Forum on technical components of the project	The technical support from WEEE forum has assisted NESREA in providing technical requirements for various segment of the project implementation
PRO database	develop the methodology on the data sources and modelling approach on collecting and analyzing the market data of products put on the market.	NESREA had issues with gaps in the TOR for the database consultant. Agreement was not reached with the initial consultant awarded; hence different consultant was selected through due process. The PRO database app on course.	The PRO Database App has reached 65 % completion.
Establish / upgrade domestic collection	Establish/ upgrade domestic collection channels for collection of various e-waste categories	30 e-waste collection centres have been established. Upgraded is on course	Collection of e-waste in progress

channels			
Incentives for collection of materials	Collection of 300 tonnes of e-waste through formalized collection channels that minimize environmental and health impacts	The project has commenced payment of incentives based on milestones set out in contract terms.	
Recycling/ processing plant pilots - investment & operational costs and support to safe storage or disposal of hazardous waste	Recycle 300 tonnes of e-waste and treated the following: <ul style="list-style-type: none"> <li>• 10.8 kg of precious metals (Ag, Au, Pd)</li> <li>• 150 tonnes of common metals (Fe, Al, Cu)</li> <li>• 90 tonnes of plastics re-entering the value chain</li> <li>• 30 tonnes of CRT lead glass and 3 tonnes of other hazardous fractions</li> <li>• collect 3 tonnes of plastics contaminated with HexaHeptabromodiphenyl ether</li> </ul>	Recycling process of e-waste evacuated from collection centres is ongoing.	a formalized approach to e-waste collection and recycling to support the EPR framework is being achieved
Communication package	A communication package to be developed to inform about the implementation of the EPR program.	<ul style="list-style-type: none"> <li>• Communication strategy document produced.</li> <li>• Project aired on National Television and Radio Stations. TV, Radio and Print Media jingles developed</li> </ul>	
EPR Capacity Development Consultant	Develop an executable capacity building programme for Enforcement officers and value chain (collectors, recyclers etc.) for the EPR	Training manual developed for government regulators, recyclers, collection centres and informal collectors. Training of aforementioned stakeholders carried out.	knowledge gap is being bridged for targeted population.

### C. Financial Management

The financial management of the project was implemented based on Adherence to UNEP's policies and procedures: Completeness of project financial information, Communication between finance and project management staff and the review of documents show that NESREA submits forecast and work plan to GEF as well as expenditure report. The utilization of money is fully guided. Every amount of money to be spent must have been captured in the work plan/expenditure forecast for the quarter. Evidence of approved work plan and expenditure forecast were sighted. Three financial audits have been prepared by an external auditor for 2019, 2020 and 2021.

Monies are charged on the budget line items based on budgetary provision. The approval to pay goes through a bureaucratic procedure before payments are made on government e-payment platform. The platform has functionality that allows all payments to be accountable, traceable. Beneficiaries are paid directly for execution of assignments. The bureaucratic nature of the approval procedure for payments is slow. See below chart for a typical payment procedure. There is need to improve the efficiency of the payment system by reviewing the bureaucracy to respond to the objective and timeliness required by the project.



**Typical Payment Procedure in NESREA**

The accounting and financial management systems in place are adequate for project management and producing accurate and timely financial information. Progress reports are produced accurately, timely and respond to reporting requirements including adaptive management changes. The executing agency has managed to operate within project budget. Implementing the projected cost was quite a challenge due the foreign exchange differential of United State Dollar (USD) to the local currency (Naira) which is the acceptable exchange for local contracts and activities. Ordinarily this should have been a positive point for the project cost but not so.

The forex market in Nigeria has official exchange rate and the parallel market exchange rate. The parallel market gives an exchange rate of 55% higher in value than the official exchange rate for USD to Naira. For the project, the exchange rate accepted is the official exchange rate. The challenge is the fact the parallel market exchange rate drives the economy. This has significantly shot the inflation rate from 11.4% in 2019 to 21.09 % in 2022.

The impact of the inflation led to the increase in prices of e-waste in the market thereby causing a huge gap between the incentives offered to collectors and the offer they get at the market. This affected the efficiency of collection. In spite of the challenge, financial resources were utilized efficiently, based on records and physical verifications.

Procurement for the project were implemented based on the Nigerian Public Procurement Act, 2007. The principle of procurement was observed to have been followed, including the monetary approval threshold. Open competitive bidding was mostly adopted for procurement of the contract issued. Restrictive tendering was also adopted for some contracts where there was an urgent need for the services to be carried out and engaging in tendering proceedings or any other method of procurement is impractical due to unforeseeable circumstances giving rise to the urgency which is not the result of dilatory conduct on the part of the procuring entity. This is provided for in section 42 of the PPA Act, 2007.

The partnerships/linkages between institutions / organizations were encouraged and supported. The monitoring team for the project composed of NESREA team and the key stakeholders (LAWMA, LASEPA and EPRON). The linkage is quite strategic and provides a platform to efficiently ensure the project is on track. The partnership is considered sustainable.

On collection rate of e-waste, a total weight of 63 tons representing 21% of target has been evacuated by the two recycling centres. Sorting and dismantling were being carried out as at time of visit to the recycling facilities. The fractions were yet to be extracted.

The financial management is satisfactory.

**Table 8: E-Waste Supply Commencement Status as at September 2022**

S/N	Name of Centre	E-Waste Collection Status	Comment
1	Jullmeek Multipurposes Company	Yet to supply	Follow-up to ensure commencement of supply and its sustainability
2	Ecoviridis Environmental Technology Ltd	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
3	Ivarest Global	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
4	Association of Vendors Of Used Computers And Allied	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
5	Swiftvale Nigeria Ltd	Yet to supply	Follow-up to ensure commencement of supply and its sustainability
6	EL-AS Tech Enterprise Ltd	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
7	Abertawe International Services Ltd	Yet to supply	Follow-up to ensure commencement of supply and its sustainability
8	Euglobe solution Ltd	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
9	Leklinks Field Enterprises	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
10	Tenda International Trade Nigeria Limited	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
11	Fadsuta Ventures	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
12	CNSSL E-Waste Management Service	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
13	Obanijesu Logistics	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
14	MSC E-WASTE (Agodo Collection Centre)	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
15	JDP Global Concept	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
16	Procycle Cleaning Services	Yet to commence supply	Follow-up to ensure commencement of supply and its sustainability
17	E-Terra Material Recovery & Recycling Facility (MRRF)	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
18	Recycle Points Limited	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability

19	Energy Return Ltd	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
20	Hinckley Recycling Nigeria Limited	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
21	E-Waste Collectors Association of Nigeria (ECAN)	Yet to commence supply	Follow-up to ensure commencement of supply and its sustainability
22	MRI Investment Ltd	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
23	Falcons Solutions Services	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
24	Horlag Recycling	Yet to commence supply	Follow-up to ensure commencement of supply and its sustainability
25	Darlington Consult	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
26	Sustainabiliti Limited Centre	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
27	Ecofield Nigeria Ltd	Yet to commence supply	Follow-up to ensure commencement of supply and its sustainability
28	Eco-Recovery Management Limited	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability
29	Flow Havils Resources Ltd	Yet to commence supply	Follow-up to ensure commencement of supply and its sustainability
30	Street Waste Company Ltd	Commenced supply to recyclers	Follow-up to ensure to ensure sustainability

## **D. Monitoring and Reporting**

### **i. Monitoring and Reporting**

The M&E of the Project was prepared with standard template developed by GEF/UNEP and the executing agency. The components consisted of guidelines of the gazetted EPR for EE sector and the requirements in the ToR issued to the recycling facilities and collection centers.

The M&E was coordinated by the Project Manager with team members comprising of the project team, representatives of LAWMA, LASEPA and EPRON. As at the time of the MTR, three (3) M&E had been carried out. One of such was M&E was carried out along with members of the Project Steering Committee.

The contact persons of the 30 collection centres and the two recycling facilities agreed that monitoring officers conducted monitoring field visits on a regular basis for the verification of the Project's physical activities. Detailed monitoring reports contain information on the implemented activities and their



photo documentation. Records also show that the communication consultants participated on some of the visits to capture interviews and physical verifications of the field activities.

The monitoring reports and the visits revealed that the incentive for the collectors were not competitive as regarding the amount offered in the informal market. The executing agency explained that the incentive negotiated based on approved budget and the collectors agreed at inception of contract. The following table shows the incentive per kg of e-waste:

**Table 9: incentive per kg of e-waste**

<b>CATEGORY</b>	<b>PRODUCT TYPES</b>	<b>GEF PRICE PER KG IN (₦)</b>
<b>Category 1: Cooling and freezing equipment</b>	Refrigerators	72.58
	Freezers	72.58
	Air conditioners	72.58
	Central Cooling	226.80
<b>Category 2: Screens and monitors.</b>	Televisions	71.58
	Monitors	90.72
	Laptops	108.86
	Notebooks	145.15
	Tablets	181.44
<b>Category 3: Lamps</b>	Fluorescent Lamps	20.00
	High Intensity Discharge Lamps	20.00
	LED Lamps	165.00
<b>Category 4: Large equipment</b>	Large Printing Machines	108.86
	Copying Equipment	108.86
	Desktops	145.15
	Telecommunication Equipment	145.15
	Central Heating	0.00
	PV Panels	72.58

	Servers	108.86
	Medical Equipment	72.58
	Tools	54.43
	Routers	54.43
<b>Category 5: Small equipment</b>	Microwave Ovens	290.30
	Electrical and Electronic toys	36.29
	Small electrical and Electronic tools	72.58
	Irons	72.58
	Kitchen Appliances	90.72
	Electric Tooth Brushes	36.29
	Hair Removal devices	36.29
<b>Category 6: Small IT and Telecommunication Equipment</b>	Mobile Phones	3,265.92
	Pocket Calculators	72.58
	Personal Computers	362.88
	Printers	290.30
	Telephones	145.15

In view of the above, the Monitoring and Reporting is satisfactory.

### **E. Sustainability**

#### **Socio-political sustainability**

Nigeria, had already integrated specific environmental policies on a national level, such as the Extended Producer Responsibility (EPR) policy, to advance the management of product end-of-life cycles and environmental improvement of recyclable materials.

The Nigerian Federal Ministry of Environment adopted the EPR policy in 2014 via the National Environmental Standards and Regulations Enforcement Agency. NESREA was established to ensure that Nigeria complies with international environmental agreements, protocols, conventions, and treaties. Following the adoption of the EPR framework, the agency issued detailed guidelines for its implementation in Nigeria. The concept of the EPR has continually gained the commitment of the various governments since 2014.

Findings from key state actors like LASEPA and LAWMA in Lagos State, reveals that they have taken steps to accommodate the project as a routine in their work plan, with assurance that the political sentiments of the state would likely not affect the sustainability of the project even after closure. This is especially so, as the state government bears the brunt of the implications of improper disposal of electronic waste and would appreciate efforts geared to minimizing the impact in a sustainable manner.

### **Financial sustainability**

The likelihood that project results will be sustained after GEF funding ceases has been enhanced by the achievements of the project by midterm.

The review of the National Environmental (Electrical / Electronic Sector) Regulations is meant to enforce compliance to institutional arrangement to finance the EPR model of the project. EPRON as well as the PRO coordinates the PRO database when fully functional with an arrangement that a third party would be contracted to manage the black box concept to ensure credibility and non-disclosure confidential business data.

To ensure sustainability of the project, the draft regulation makes it compulsory for producers to subscribe to the EPR Programme. The arrangement is designed in such a way that as products are put into the market in Nigeria, levy is calculated for the cost to collect and recycle the products at the end of life to ensure a cradle to cradle approaches of a circular economy model. The system is based on the EPR model in Nigeria. The fund generated is coordinated by EPRON through the PRO database which a payment gateway for funds settlements incorporated.

### **Institutional Sustainability**

The Federal Government fully recognizes the importance of the circular economy approaches on the electronic sector in Nigeria and the need to provide a framework that guide the sustainability of the project.

NESREA as the project executing Agency, has responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general and environmental technology including coordination, and liaison with, relevant stakeholders within and outside Nigeria on matters of enforcement of environmental standards, regulations, rules, laws, policies and guidelines.

Prior to the project, NESREA had developed and operationalized the National Environmental (Electrical / Electronic Sector) Regulations in 2011, and other extant regulations with direct implications on the Extended Producer Responsibility Programme of the Agency.

The project on the Circular Economy Approaches for the Electronics Sector in Nigeria supported the review of the National Environmental (Electrical / Electronic Sector) Regulations in 2011 to reflect the circular economy approaches to managing electronic waste as against the former which was linear economy approaches.

The Agency has field office in the pilot state and across other states of the federations. The NESREA Act empowers the Agency to be responsible for enforcing all environmental laws, guidelines, policies, standards and regulations in Nigeria, as well as enforcing compliance with provisions of international agreements, protocols, conventions and treaties on the environment to which Nigeria

is a signatory.

In ensuring the sustainability of the project is further supported, NESREA has collaborated with the Lagos State Environmental Protection Agency (LASEPA), Lagos State Waste Management Authority (LAWMA) and E-waste Producer Responsibility Organisation Nigeria (EPRON) in the execution of the GEF funded project. Each of the organizations, have made the project part of their routine operations.

The project team has developed organised several capacity building workshop for the recyclers, collection centre operators, informal collectors, corporate organizations and government agencies to fully appreciate the concept of circular economy and best environmental practice.

The Sustainability and Likelihood of Impact are rated Highly Likely.

## **4. Conclusions and Recommendations**

### **4.1 Conclusions**

The project has been in operation for approximately three years. At the inception, the project was designed to address the reduction in the release of global pollutants (POPs, mercury and chemicals addressed under SAICM) into the environment from the unsound handling and management of e-waste. The co-benefit of the project is the reduction in impacts on vulnerable populations engaged in the sector and reducing the contamination of air, land and water at local and global level. The project further sought to bring together players along the electronics value chain (from government, the private sector and civil society) to kick start a financially self-sustaining circular economy approach for electronics in Nigeria, protecting the environment while creating safe employment for Nigerians. The project is targeted at transforming the challenge of dealing with a growing production of electronics waste into an opportunity and aims to promote a circular economy for electronics in Nigeria in which the electronics sector recovers and reintroduces usable materials into the value chain and disposes of hazardous waste streams in an environmentally sound manner. It is intended to provide a blueprint for replication across other African countries.

The project is highly relevant to Nigeria, considering the problem of the piles of e-waste generated in the country as well as imported. Nigeria remains a major recipient of used electronics from abroad. While the true amount of overseas-generated waste landing in Nigeria is hard to quantify, United Nations University research has revealed more than 60,000 tons of used electrical and electronics equipment are shipped into the country annually via Lagos ports alone, with an unknown amount imported over land routes from neighboring countries. More than 25 per cent of this is dead on arrival – heading straight to dumps or dismantling.

Similarly, the project complies with GEF priorities and remains a critical project for GEF. The GEF project strategic results framework shows no notable discrepancies with the baseline situation in the country. This made the planning and implementation of the project to be on course. In terms of Progress towards results, the Project has reached remarkable achievements. This puts progress towards results to marginally satisfactory. Progress towards end-of-project targets for most impact and outcome indicators is (marginally) on track to be achieved. Significant part of the targets has been fully achieved, while a few targets are yet to be met. These targets are considered as key aspect of the targets - such as collection and recycling of the targeted 300 tons of e-waste projected. However, they are clearly on target to be achieved. Although, the challenge in achieving the targeted collection and recycling of the e-waste is the incentive given to the collectors which is not competitive with what is obtainable in the market. The approach of the executing agency has been to continually engage the collectors by ensuring they understand that incentive also covers the upgrade money paid to them and the PPEs allocated for their operation. The agency also approved annual renewal of registration for the collectors without payment of the stipulated fee.

**Recommendations:**

- The price tag allocated per item (e-waste) should be reviewed to compete with the open market price.
- The project team in Nigeria, led by NESREA, should follow-up to ensure that all collection centres supply the e-waste target allocated to them.
- There is need to improve the efficiency of the payment system by reviewing the bureaucracy to respond to the objectives and timeliness required by the project.
- The project team should continue to monitor the upgrade being executed by the collection centres to ensure they meet the minimum requirement specified in the terms of reference for the contract.
- Ensure the recycling firms speed up the process of recycling.
- Ensure recycling data collected are in line with indicators supporting environmentally sound management.
- More awareness campaign should be carried out to Lagos on the project and its benefit
- NESREA should intensify effort in facilitating the process of gazetting the reviewed national environmental regulations on the electrical electronics sector.
- NESREA should organize consultative meeting with corporate entity such as Banks, telecommunication company, etc. to educate them on the GEF project and the need to subscribe to the circular economy approaches thereby making available their e-waste to the collectors accredited by NESREA.

**Lessons Learned**

- Existing pricing should not be interfered with, especially in an economy with rising inflation.
- Upgrading facility of the collection centres improves the adoption of sound environmental management.
- Incentives for a project of this nature should focus on capacity building and upgrading of facilities to meet best practices.
- Payment system for contractors and other activities should be designed to respond to the objectives and timeliness required by the project.
- The project approach which established the e-waste collection centres to serve as a form of transfer station for evacuation by the recycling companies provided a sustainable business relationship among key players.
- The concept of transportation logistics being managed by the recyclers for evacuation of e-waste from the collection centres reduced the burden of the centre operators in moving the e-waste to the recyclers.
- Regular capacity building and consultation can significantly improve compliance rate as observed in the operations of the recyclers, centre operators, and the informal collectors.
- Women have demonstrated exceptional ability to excel in the e-waste business. This was observed in house to house strategy adopted by some of the women in engaging their local community to subscribe to the circular economy approaches

## **5. ANNEXES**

1. List of documents reviewed
2. List of officially Selected and Licensed Collectors and Recyclers
3. Rating scales
4. Site Review / monitoring / interviews exercise Questionnaire
5. Site map showing details of Site Inspection

**Annex 1: List of Document Reviewed**

1.	EPR Guidance Document
2.	Feasibility Study for collection and Recycling
3.	Gender consultant report
4.	Levy consultant submission
5.	Disposal market study – phase 1 report
6.	WEEE Forum submissions
7.	PRO database design
8.	ToR/Agreement for the Establish / upgrade domestic collection channels
9.	Incentives for collection of materials
10.	ToR/Agreement Recycling/ processing plant pilots - investment & operational costs and support to safe storage or disposal of hazardous waste
11.	Communication package/ strategic document
12.	EPR Capacity Development modules/training document
13.	Financial Audit for 2021
14.	forecast and expenditure reports
15.	M&E Reports
16.	E-waste collection and recycling data
17.	Work plan for 2019-2022
18.	Draft EE Regulations



**Annex 2:** List of officially Selected and Licenced Collectors and Recyclers

**List of 30 Established Collection Centres**

S/N	NAME OF CENTRE	OPERATIONAL ADDRESS	LGA	CONTACT	EMAIL
1	Jullmeek Multipurposes Company	Guestimate Avenue, Back NNPC Petrol Station Along Kudirat Abiola Way Oregun Ikeja	Ikeja	Julius Amechi	<a href="mailto:jullmeekmultipurposes@gmail.com">jullmeekmultipurposes@gmail.com</a>
2	Ecoviridis Environmental Technology Ltd	Popo Williams Street, Lekki Interior, Eti-Osa local Government Area, Lagos	Eti-Osa	Onohi Odunsi	<a href="mailto:onohii@yahoo.com">onohii@yahoo.com</a>
3	Ivarest Global	1 Capt. Olatuga Banjo Street, Imude-Shibiri, Ojo Lagos	Ojo	Nil	<a href="mailto:ivarestg@gmail.com">ivarestg@gmail.com</a>
4	Association of Vendors Of Used Computers And Allied	17 Kodesho Street Computer Village, Ikeja, Lagos state  <b>New Address:</b> 13, number 17 Akinremi Street Anifowoshe, Ikeja, Lagos State.	Ikeja	Ifeanyi Maduagwu	<a href="mailto:anyamaduagwu@gmail.com">anyamaduagwu@gmail.com</a>
5	Swiftvale Nigeria Ltd	Ikorodu Industrial Layout, Odogunya, Ikorodu, Ikorodu Local Government Area	Ikorodu	Oladele Esan	<a href="mailto:info@swiftvale.com">info@swiftvale.com</a>
6	EL-AS Tech Enterprise Ltd	Shop F1859/1857 Alaba International Market, Ala, Ojo LGA, Lagos State	Ojo	Mr Ilyasu Buhari Yusuf	<a href="mailto:bukharilyas11@gmail.com">bukharilyas11@gmail.com</a>
7	Abertawe International Services Ltd	Shop F1859/1857 Alaba International Market, Ala, Ojo LGA, Lagos State	Agege	Olakunle Esan	<a href="mailto:elnuk01@yahoo.com">elnuk01@yahoo.com</a>
8	Euglobe solution Ltd	Plot 5, Ebigbo Close, Ori Oke, Ogudu, Kosofe Local Government Area, Lagos	kosofe	Ogochukwu Onyeri	<a href="mailto:eugonyenri@yahoo.com">eugonyenri@yahoo.com</a>
9	Leklinks Field Enterprises	PWD Yard opposite Gate 1, Owode Onirin, Beside Mukaz Tiger Iron company Ikorodu Rd Ketu, Kosofe Local Government Area, Lagos	kosofe	Agboola Moses O and Olaide Olajide I.	<a href="mailto:agboola_olayeni@yahoo.com">agboola_olayeni@yahoo.com</a> ;  <a href="mailto:olaide-olajide@yahoo.com">olaide-olajide@yahoo.com</a>
10	Tenda International Trade Nigeria Limited	Plot 7, Canal Avenue, Okota, Isolo, Lagos, Amuwo-Odofin LGA	Amuwo-Odofin	Mr. Justice Ogala	<a href="mailto:info@tendainternationaltrade.com">info@tendainternationaltrade.com</a>

11	Fadsuta Ventures	LAWMA Trans Loading Station at Lagos Island Sura, Lagos Island. Lagos Island LGA	Lagos Island	Gbolahan Awonuga	<a href="mailto:g.awonuga@gmail.com">g.awonuga@gmail.com</a>
12	CNSSL E-Waste Management Service	Off Ajah- Ibeju, Lekki Expressway, beside Ibeju Lekki LGA	Ibeju/Lekki	Adenola Ogunkoya	<a href="mailto:adenolaogunkoya@gmail.com">adenolaogunkoya@gmail.com</a>
13	Obanijesu Logistics	No 8, Longe Babatunde Street, Isheri-Igando Road, Alimosho LGA, Lagos	Alimosho	Adeoye Oluwatosin	<a href="mailto:adeoyecolumuyiwa@gmail.com">adeoyecolumuyiwa@gmail.com</a>
14	MSC E-WASTE (Agodo Collection Centre)	Behind Lami Gas Plant, Odonguyan Industrial Estate, Ikorodu, Ikorodu Local Government Area, Lagos	Ikorodu	Mukhtar Adekilekun Haroon	<a href="mailto:mah4ril@yahoo.com">mah4ril@yahoo.com</a>
15	JDP Global Concept	7, Antony Giwa Street, Isokan Estate, Ipaja, Ayobo, Alimosho Local government, Lagos	Alimosho	Chris Fakoya	<a href="mailto:fakoyachristopher@yahoo.com">fakoyachristopher@yahoo.com</a> ; <a href="mailto:jdpglobalconcept@gmail.com">jdpglobalconcept@gmail.com</a>
16	Procycle Cleaning Services	9, Olasoji Street, Oko-Oba, Agege, Agege Local Government Area, Lagos	Agege	Olowonyo Ahmed	<a href="mailto:holowoyo@yahoo.com">holowoyo@yahoo.com</a>
17	E-Terra Material Recovery & Recycling Facility (MRRF)	Plot 750 Baale Shoba Street Abule-Ado off Badagry Expressway Lagos	Amuwo-Odofin	Mr. Patrick Inoh	<a href="mailto:patrick.inoh@etera.com.ng">patrick.inoh@etera.com.ng</a>
18	Recycle Points Limited	7th Avenue, A Close Junction, Festac Town, Amuwo Odofin Local Government Area, Lagos	Amuwo-Odofin	Mr Alison Ukonu	<a href="mailto:mazi.ukonu@recyclepoints.com">mazi.ukonu@recyclepoints.com</a>
19	Energy Return Ltd	Off Apapa –Oshodi Expressway, Mile 2, Amuwo Odofin. Amuwo Odofin Local Government Area	Amuwo-Odofin	Okeke Ekene	<a href="mailto:pakeeno@yahoo.com">pakeeno@yahoo.com</a>
20	Hinckley Recycling Nigeria Limited	Sadiku Elemoro str, off watchtower road, Gbogije, Ibeju, Lekki-Epe Expressway.	Ikeja	Adrian Clews	<a href="mailto:aclews@hinckley.com.ng">aclews@hinckley.com.ng</a>
21	E-Waste Collectors Association of Nigeria (ECAN)	N0 2 Bayo Oshodipo street off Afizman drive Anifowoshe Ikeja.Lagos	Eti-Osa	Ikenna Obinna & Tobi Adegun	<a href="mailto:ericikennaobinna@gmail.com">ericikennaobinna@gmail.com</a> , <a href="mailto:adegunoluwatobi@gmail.com">adegunoluwatobi@gmail.com</a>
22	MRI Investment Ltd	Opposite Onosa Bus stop, Lekki - Epe Expressway, Ibeju Lekki Local Government Area, Lagos	Ibeju/Lekki	Koyejo Adejoye & Yomi Abodurin	<a href="mailto:koyejoadejoye@gmail.com">koyejoadejoye@gmail.com</a>
23	Falcons Solutions Services	LAWMA Transfer Loading Station, Agege, Lagos State	Agege	Doris Denis-Akano,	<a href="mailto:falconssolutions@yahoo.com">falconssolutions@yahoo.com</a>

24	Horlag Recycling	10, Atlantic Hall Road, Araga-Epe, Epe Local Government Area, Lagos	Epe	Akinjobi Oladimeji	<a href="mailto:akinjobi.oladimeji@horlag.com">akinjobi.oladimeji@horlag.com</a>
25	Darltan Consult	Km 15, Lagos – badagry Expressway, Volkswagen, Ojo Local government, Lagos	Ojo	Oderinde Daniel	<a href="mailto:darltonconsult@gmail.com">darltonconsult@gmail.com</a>
26	Sustainabiliti Limited Centre	Suite 11, 2nd Floor Ruby Block, All Seasons Plaza, 24 Lateef Jakande Rd, Agidingbi, Ikeja, Ikeja Local Government Area, Lagos	Ikeja	Dr. Kayode Oluwagbuyi	<a href="mailto:info@sustainabiliti.com">info@sustainabiliti.com</a>
27	Ecofield Nigeria Ltd	19, Ifelodun Close, Off Miran Road, Abule-Egba. Alimosho Local government, Lagos	Alimosho	Engr. Christopher Tomi Adedeji	<a href="mailto:christokongo@yahoo.com">christokongo@yahoo.com</a>
28	Eco-Recovery Management Limited	Powerline Bus Stop, Isheri-Igando Road, Ikotun, Alimosho Local Government Area, Lagos	Alimosho	Maryam Njie	<a href="mailto:maryam@thermalinitiative.com">maryam@thermalinitiative.com</a>
29	Flow Havils Resources Ltd	49, Shotinoye Street, Papa Ajao, Mushin, Lagos	Mushin	Olawale Owolabi	<a href="mailto:olawale.owolabi@gmail.com">olawale.owolabi@gmail.com</a>
30	Street Waste Company Ltd	17 Kodesho Street Computer Village, Ikeja, Lagos State	Ikeja	Omo A.	<a href="mailto:omo.a@swcl.com.ng">omo.a@swcl.com.ng</a>

#### List of Selected and Licenced Recyclers

S/N	NAME OF CENTRE	OPERATIONAL ADDRESS	LGA	CONTACT	EMAIL
1	E-Terra Technologies Ltd	Plot 750 Baale Shoba Street Abule-Ado off Badagry Expressway Lagos	Amuwo-Odofin	Mr. Patrick Inoh	<a href="mailto:patrick.inoh@eterra.com.ng">patrick.inoh@eterra.com.ng</a>
2	Hinckley Recycling Nigeria Limited	Sadiku Elemoro street, off Watchtower Road, Gbogije, Ibeju, Lekki-Epe Expressway.	Ikeja	Adrian Clews	<a href="mailto:aclews@hinckley.com.ng">aclews@hinckley.com.ng</a>

### Annex 3: Rating scales

The review will provide individual ratings for the evaluation criteria described in the table below. The Evaluation Office website (<https://www.unenvironment.org/about-un-environment/evaluation/our-evaluation-approach>) holds all support tools, templates and guidance notes mentioned below.

Most criteria will be rated on a six-point scale as follows: Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS); Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU). Sustainability and Likelihood of Impact are rated from Highly Likely (HL) down to Highly Unlikely (HU) and Nature of External Context is rated from Highly Favourable (HF) to Highly Unfavourable (HU). A Ratings Matrix is available to support a common interpretation of points on the scale for each evaluation criterion. These ratings are ‘weighted’ to derive the Overall Project Rating (see ‘Weighting of Ratings’ on the Evaluation Office website).

<b>Criterion</b> <i>(Enter each rating into the Weighting of Ratings table to arrive at the rating for each criterion and the overall project rating)</i>	<b>Summary Assessment</b>	<b>Rating</b>
<b>A. Strategic Relevance</b>		<b>HS □ HU</b>
2. Alignment to Donor/GEF strategic priorities		HS □ HU
3. Relevance to regional, sub-regional and national environmental priorities		HS □ HU
4. Complementarity with existing interventions		HS □ HU
<b>B. Effectiveness<sup>1</sup></b>		<b>HS □ HU</b>
1. Availability of outputs		HS □ HU
2. Achievement of project outcomes		HS □ HU
3. Likelihood of impact		HL □ HU
<b>C. Financial Management</b>		<b>HS □ HU</b>
1. Adherence to UNEP’s policies and procedures		HS □ HU
2. Completeness of project financial information		HS □ HU
3. Communication between finance and project management staff		HS □ HU
<b>D. Efficiency</b>		<b>HS □ HU</b>
<b>E. Monitoring and Reporting</b>		<b>HS □ HU</b>
2. Monitoring of project implementation		HS □ HU
3. Project reporting		
<b>F. Sustainability</b> <i>(the overall rating for Sustainability will be the lowest rating among the three sub-categories)</i>		<b>HL □ HU</b>
1. Socio-political sustainability		HL □ HU
2. Financial sustainability		HL □ HU
3. Institutional sustainability		HL □ HU
<b>G. Factors Affecting Performance and Cross-Cutting Issues<sup>2</sup></b>		<b>HS □ HU</b>
1. Preparation and readiness		HS □ HU

<sup>1</sup> Where a project is rated, through the assessment of Project Design Quality template during the review inception stage as facing either an Unfavourable or Highly Unfavourable external operating context, ratings for Effectiveness, Efficiency and/or Sustainability may be increased at the discretion of the Review Consultant and Project Manager together. Any adjustments must be fully justified.

<sup>2</sup> While ratings are required for each of these factors individually, they should be discussed within the Main Review Report as cross-cutting issues as they relate to other criteria. Note that catalytic role, replication and scaling up are expected to be discussed under effectiveness if they are a relevant part of the TOC.

<b>Criterion</b> <i>(Enter each rating into the Weighting of Ratings table to arrive at the rating for each criterion and the overall project rating)</i>	<b>Summary Assessment</b>	<b>Rating</b>
2. <i>Quality of project management and supervision</i> <sup>3</sup>		HS <input type="checkbox"/> HU
3. <i>Stakeholders participation and cooperation</i>		HS <input type="checkbox"/> HU
4. <i>Responsiveness to human rights and gender equity</i>		HS <input type="checkbox"/> HU
5. <i>Environmental, social and economic safeguards</i>		HS <input type="checkbox"/> HU
6. <i>Country ownership and driven-ness</i>		HS <input type="checkbox"/> HU
7. <i>Communication and public awareness</i>		HS <input type="checkbox"/> HU
<b>Overall Project Rating</b>		<b>HS <input type="checkbox"/> HU</b>

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<sup>3</sup> In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the Executing Agency and the technical backstopping provided by UNEP, as the Implementing Agency.

**Annex 4:** Site Review / monitoring / interviews exercise Questionnaire

<b>Site inspection/monitoring interview Date</b>					
<b>Name of Collection Centre</b>					
<b>Operational Address</b>					
<b>Contact:</b>	<b>Name</b>			<b>Designation</b>	
	<b>Phone Number</b>				
<b>Site Contact / Person(s) interviewed</b>					
<b>Name</b>	Israel Olagunju	<b>Designation</b>			<b>Phone No</b>
<b>Field Observation / Interview</b>					
<b>Field observations</b>				Female	0
				male	0
<b>Interview</b>					
<b>What is the Most Rewarding Aspect of the Business?</b>					
❖			❖		
❖					
<b>What are the Main Challenges:</b>					
❖					
❖		❖		❖	
<b>Experience with Informal collectors:</b>					
❖					
<b>Rewarding Contribution of the GEF Project</b>					
❖					
❖					
<b>Health and safety Risk associated with the business:</b>					
❖					

**Annex 5: site map showing details of Site Inspection**



