



PROJECT TERMINAL EVALUATION

“Energy Efficient Production and Utilisation of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone”

UNDP PIMS 4904

GEF ID 4840

GEF FOCAL AREA: CLIMATE CHANGE - MITIGATION

STRATEGIC PROGRAM OF GEF 5:

CCM2 PROMOTE MARKET TRANSFORMATION FOR ENERGY EFFICIENCY IN INDUSTRY AND THE BUILDING SECTOR
CCM3 PROMOTE INVESTMENT IN RENEWABLE ENERGY TECHNOLOGIES CCA3 PROMOTE TRANSFER AND ADOPTION OF
ADAPTATION TECHNOLOGY

IMPLEMENTING AGENCY: UNITED NATIONS DEVELOPMENT PROGRAMME

Executing Agency: MINISTRY OF ENERGY AND WATER RESOURCES; ENVIRONMENT PROTECTION AGENCY - SIERRA
LEONE

REGION: AFRICA

COUNTRY: SIERRA LEONE

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from 1 July 2020 to 31 July 2020
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Disclaimer:

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ACRONYMS AND ABBREVIATIONS

ARC	Aprovecho Research Centre
BDS	Business Development Services
BET	Biomass Energy Technologies
BRAC	Building Resources Across Communities
CCDC	CookStove and Charcoal Development Center
CC-SP	Climate Change-Strategic Program
CO	Country Office
CPA	Charcoal Producer Association
CPAP	Country Programme Action Plan
DIM	Direct Implementation Modality
DNA	Designated National Authority
DoE	Department of Energy
EA	Executing Agency
ECREEE	ECOWAS Renewable Energy and Energy Efficiency Centre
EFA	Environment Foundation of Africa
EEPUC	Energy Efficient Production and Utilisation of Charcoal
EFO	Energy for Opportunity
EPA-SL	Environment Protection Agency – Sierra Leone
EUEI-PDF	EU Energy Initiative Partnership Dialogue Facility
FAO	Food and Agriculture Organisation
FD	Forest Division
GEF	Global Environment Facility
GERES	Group Energies Renouvelables Environnement et Solidarités
GHG	Greenhouse Gas
GIZ	Gesellschaft für Internationale Zusammenarbeit (German International Cooperation)
GoSL	Government of Sierra Leone
IA	Implementing Agency
IC	International Consultant
ICRAF	International Centre for Research in Agroforestry
ICS	Improved Cook Stoves
LRGS	Loan Risk Guarantee Scheme
MAFFS	Ministry of Agriculture, Forestry and Food Security
MFED	Ministry of Finance and Economic Development
MoE	Ministry of Energy
M&E	Monitoring and Evaluation
MILCPE	Ministry of Lands, Country Planning and the Environment
MoU	Memorandum of Understanding
MVE	Measuring, Verification and Enforcement
MTI	Ministry of Trade and Industry
MTR	Mid-term Review
NGO	Non-Government Organisation
NPD	National Project Director
PA	Project Assistant
PES	Payment for Environment Services
PIR	Project Implementation Report
PIW	Project Inception Workshop
PM	Project Manager
PMU	Project Management Unit

Prodoc	Project Document
PSC	Project Steering Committee
QA	Quality Assurance
QC	Quality Control
REDD	Reducing Emissions from Deforestation and Forest Degradation
REC	Renewable Energy Centre
ROtI	Review of Outcome to Impact
RKLCC	Research, Knowledge, Learning and Coordination Centre
RRF	Results and Resources Framework
NSC	National Steering Committee
SABI	Agribusiness Service Program
SLSB	Sierra Leone Standards Bureau
SMART	Specific, Measurable, Achievable, Relevant, Time-bound
SONGHAI	Centre involved in agricultural training, research and production for sustainable livelihoods in Africa.
ToR	Terms of Reference
UNDAF	UN Development Assistance Framework
UNDP	United Nations Development Programme
UNDP HQ	UNDP Headquarters
UNFCCC	United Nations Framework Convention on Climate Change
US\$	United States Dollar
WAPFR	Western Area Peninsula Forest Reserve
WFP	World Food Program
WHL	Wekthungerhilfe
WWF	World Wildlife Fund

EXECUTIVE SUMMARY

Table 1: Project Summary Table

Project Title	Energy Efficient Production and Utilization of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone		
UNDP Project ID (PIMS#)	4904	PIF Approval	August 2012
GEF Project ID (PIMS#)	4840	CEO Endorsement	16 September 2016
Country	Sierra Leone	ProDoc Signature	24 April 2015
Region	Africa	Project Manager hired	Feb 2016
GEF Focal area	Climate change	Inception workshop	Feb 2016
Trust Fund	GEF-5	Mid-term review	October 2018
Modality	Direct Implementation (DIM)	Project closure date	31 Dec 2019
Executing Agency / Implementing Partner	UNDP, Ministry of Energy and Water Resources; Environment Protection Agency - Sierra Leone (EPA-SL)	Terminal evaluation	July 2020
Project Financing	At CEO endorsement (US\$)	At Terminal evaluation (US\$)	
1. GEF financing	1,768,182	1,743,274	
2. UNDP contribution	200,000	200,000	
3. Government (in kind)	500,000	-	
4. SLEPA-EU Cap Dev	5,016,000	-	
5. ICRAF BioDev	823,314	-	
6. GERES (NGO)	50,000	-	
7. BRAC (Microfinance Company (in-kind))	1,682,174	-	
8. WestWind Energy (in-kind)	200,000	336,317	

9. Toyola Energy (Kind)	100,000	-
10. Bockarie (private sector) (in-kind)	150,000	-
11. Samu Enterprise (Private sector) (in-kind)	100,000	-
Total co-financing (cash)	6,984,182	536,317
Total project cost	10,589,670	2,279,591

Project Description

This UNDP-supported, GEF-financed project 'Energy Efficient Production and Utilization of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone (EEPUC)' commenced implementation on 24 April 2015 for the duration of four years till 31st December 2019. The Project is implemented by the UNDP Country Office (CO) with the support of a Project Management Unit (PMU) under Direct Implementation Modality (DIM) in close coordination with the Ministry of Energy (MOE) as an executing agency. UNDP has been responsible for the preparation, implementation and quality assurance of all activities, including procurement, recruitment, monitoring, and financial disbursement.

The total project budget is US\$ 10,589,670 of which US\$7,857,496 is cash contribution and US\$2,732,174 in kind contribution. Of the cash contribution, US\$1,768,182 is the GEF Grant, US\$200,000 is the UNDP contribution and US\$5,889,314 was expected to be provided by the other three partners. Besides, the Government of Sierra Leone, Microfinance Company and four private sector companies were also expected to contribute in-kind contributions.

The objective of the EEPUC Project is to reduce annual charcoal consumption, improve energy access, create a green environment and reduce GHG emissions in Sierra Leone through demand-side management to scale up certified cook stoves and certified charcoal business as a stop gap solution to increasing access to modern energy services. Project expected to achieve these through 3 major components:

Component 1: Policy and regulatory frameworks on the use of more efficiently produced charcoal and improved cook stoves;

Component 2: Development of public-private initiatives for the improved and more efficient production of charcoal and the scaling up of improved cookstove production;

Component 3: Improved, more efficient production and efficient utilization of certified charcoal and cookstove.

The key stakeholders and beneficiaries of the EEPUC project were – Ministry of Energy which is the executing entity and chairs the project steering committee. Other beneficiaries include the Environment Protection Agency-Sierra Leone (EPA-SL); Forestry Division (FD) under the Ministry of Agriculture and Forestry (MAF); Renewable Energy Centre (REC), Government Technical Institute (GTI); Westwind Energy; Environmental Foundation of Africa (EFA) etc. All these beneficiaries were also the main stakeholders and supported the project either in implementation or in the project governance. The key beneficiaries were the MOE and also a Charcoal and Cookstove Development Centre (CCDC), which was established as a testing and training institution at REC, GTI.

Evaluation approach and methods

The objectives of the terminal evaluation as outlined in the ToR (Annex 1) are: a) to assess the achievement of project results, b) to draw lessons that can both improve the sustainability of benefits from this project, and c) aid in the overall enhancement of UNDP programming in Sierra Leone and beyond. The evaluation also aims to provide meaningful conclusions of the project covering the aspects of relevance, efficiency, effectiveness, sustainability, and impact of the project. The evaluation also identifies lessons learned from the Project experience to benefit future undertakings and to propose improvements in ensuring the sustainability of the results.

The overall approach is based on the standard evaluation methods used for conducting project terminal evaluations of UNDP-supported, GEF-financed projects, which have been developed based on past experiences and learning (ToR in Annex 1). In line with UNDP Guidelines for the evaluation, the evaluators framed the assessment along the criteria of relevance, effectiveness, efficiency, sustainability, and impact.

The team used both desk-top review and focus group and key informant discussions, supplemented by observations during a field trip by the national consultant to the project intervention areas. Due to Covid-19 related travel restrictions, International consultant was not able to travel to Sierra Leone. The evaluation team relied on feedback from various key stakeholders and beneficiaries (Annex 3 for list of persons interviewed). The Team used the feedback to objectively assess project performance and arrive at key findings and results. A set of evaluation questions covering each of these criteria were drafted, which were customized and adjusted as the evaluation progressed to align with the audience and the topics that were relevant or related to the interviewee's assigned tasks or assignment. The list of evaluation questions is provided as Annex 5 to this report.

Summary of Findings and Recommendations

Table 2: Summary Evaluation Ratings

Monitoring & Evaluation	Ratings	IA & EA Execution	Ratings
M&E design at entry	Satisfactory	Quality of UNDP implementation	Moderately satisfactory
M&E plan implementation	Moderately Unsatisfactory	Quality of EA execution	Unsatisfactory
Overall quality of M&E	Moderately Unsatisfactory	Overall quality of implementation/execution	Moderately Unsatisfactory
Assessment of Outcomes	Ratings	Sustainability	Ratings
Relevance	Relevant	Financial resources	Moderately unlikely
Effectiveness	Moderately Unsatisfactory	Socio-economic	Moderately unlikely
Efficiency	Moderately Unsatisfactory	Institutional framework & governance	Moderately unlikely
Overall project outcome rating	Moderately Unsatisfactory	Environmental	Unlikely
		Overall likelihood of sustainability	Unlikely

Key findings:

The project has taken important steps but most of the outputs and outcomes remain work in progress at the project closure stage. Delayed project start due to Ebola outbreak, overly ambitious and complex project design, limited time frame and budget, backing out of key partners during initial stages, delays in finalizing financing scheme due to UNDP fiduciary requirements, and poor adaptive management during the initial phase are some of the key reasons behind moderately unsatisfactory performance of the project. The project started making significant progress towards the latter phase, but due to non-extension of the project duration, many of the performance indicators were not achieved.

However, challenges related to efficient charcoal production and cookstoves still exist in the country and thus the project objective remain relevant.

Relevance

- The project's objectives are fully aligned with the GEF and UNDP strategic priorities. By focusing on efficient use of bioenergy, the project aimed to reduce GHG emission and contribute towards global climate change mitigation goals.

Effectiveness & Efficiency

- As some of the outcomes are still work in progress while others failed to take off, the project has been moderately unsatisfactory in achieving its primary objectives.

Majority of initial budget was planned for providing financing support, however as this output failed to take-off, budget was used in other outputs/activities including for woodlots development, hiring of Chief Technical Advisor (CTA). The project was able to make progress in developing the financing scheme but due to non-extension, it was not implemented thus limited achievement of key performance indicators.

Partnership and Cooperation

- The project has developed successful partnerships with several stakeholders including government agencies, industry partners, NGOs, and other initiatives. However, the project failed to get desired strategic and technical support from MOE the key executing agency.

Poverty and Gender

- The initiative has considered gender specific activities and outputs. However, gender disaggregated information for performance indicators is not available in M&E reports.

Sustainability

- Most of the outcomes are still work in progress and may need continued financial and technical support to ensure long term sustainability.

Impact

- GHG emission reduction attributed to the project has not been computed due to delays in operationalization of CCDC Laboratory at Government Technical Institute due to Covid-19 related restrictions. GHG emission reduction potential may be limited currently due to limited progress on certain outputs because of lack of financing scheme launch.
- In future, GHG emission reduction due to sustainable woodlot management could be significant if woodlot area is expanded as per current Government plans. There is also increased awareness among beneficiaries of the environmental benefit the project will have on Sierra Leone's degrading environmental crisis.

Recommendations

Rec #	TE Recommendations	Entity Responsible	Time frame ¹
1	A number of activities remain work in progress and effort is required to ensure there is continued efforts by other partners. These include development of efficiency standards & certification, use of CCDC infrastructure to test cookstoves and promote best practices, and continued maintenance of woodlots developed under the project. A roadmap workshop may be organised with participation from various partners from Government sector, private sector, NGOs, and other donors. This workshop will provide an opportunity to transfer knowledge to other partners and to explore potential engagement opportunities.	UNDP Project team	Year 2020
2	Project has supported development of National Energy Policy and Bioenergy Policy; these policies were validated during the project duration. However, enactment and popularization activities are still pending. UNDP may pursue MOE to enact these policies to support clean bioenergy development in the country.	UNDP CO	Year 2020
3	Capacity building and awareness creation activities were performed under the project. Knowledge material developed for these activities must be documented and handed over to relevant partners and agencies including CCDC. These knowledge materials and learning from the project can also be shared with other regional or local programs in Africa.	UNDP project team	Year 2020
4	The project has also established forestry initiatives at the community level with local management committees to create a model for sustainable supply of biomass for charcoal production. The National Forestry Policy has not been updated since the start of the project and there may be an opportunity for the project to influence the forestry policy when updated. MAF can also take up the expansion of woodlots to newer areas using government funding support.	UNDP CO and UNDP project team	Year 2020
5	During 2019, project has developed financing schemes and also engaged potential partners including Ecobank and BRAC. There exists a great	UNDP project team	Year 2020

¹ Some of the recommendation require workshops or consultations, and due to covid-19 restriction a firm timeline is not included.

	potential to operationalize these financing schemes to support improved cook stove (ICS) entrepreneurs, efficient charcoal producers, and users. UNDP could keep engaged with these partners to support by providing knowledge support as well as linking them with other partners active in the sector.		
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1. Introduction

1.1 Purpose of the Evaluation

This document presents results of the Terminal Evaluation of the UNDP supported and GEF-financed project “*Energy Efficient Production and Utilisation of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone (EEPUC)*”. As a standard requirement for all projects financed by GEF, this terminal evaluation has been initiated by the Lead Implementing Agency, in this case, United Nations Development Programme (UNDP) Country Office (CO) in Sierra Leone. The evaluation was conducted in accordance with the GEF Monitoring and Evaluation Policy, the Guidelines for GEF Agencies in Conducting Terminal Evaluations, and the UNDP Evaluation Guidelines.

The objective of the evaluation is to provide the project partners, GEF, UNDP and the Government of Sierra Leone with an independent assessment and comparison of planned vis-à-vis achieved outputs and outcomes, identify the causes and issues which contributed to the degree of achievement of the project targets, and draw lessons that can improve the sustainability of benefits from the project, as well as contribute to an overall enhancement of UNDP programming.

The evaluation has covered the criteria of relevance, effectiveness, efficiency, sustainability, and impact. The TE then assessed the key financial aspects of the project, including the extent of co-financing planned versus realized. It assessed the extent to which the project was successfully mainstreamed with other UNDP priorities, including improved governance, and gender. The Evaluators have also looked at the extent to which the project is achieving impacts or progressing towards the achievement of (intended or unintended) impacts.

The Terms of Reference for the Terminal Evaluation is included as Annex 1 to this report.

1.2 Scope & Methodology

The TE was conducted over a period of 30 days between 1st July 2020 and 30th July 2020 by an International consultant and a National consultant. The approach was determined by the terms of reference (Annex 1) which were closely followed. The draft report was revised after receipt of comments and finalised on 31st July 2020. The text has been revised to correct factual inaccuracies in the draft or to include additional information, while other comments have been reproduced in full and audit trail is provided in the Annex 8 with comments from reviewers and responses from the consultants.

The Evaluation used a combination of approaches to assess the achievements of the project from several perspectives and a mix of quantitative and qualitative methods of data collection and analysis. Desk reviews, online and face-to-face meetings, site visits by National Consultant and follow up with key stakeholders were applied as necessary. Due to Covid-19 related travel restrictions, face-to-face meetings and site visits were conducted by National Consultant only, while the International Consultant provided virtual support through online meetings and calls. The evaluation was conducted in the following phases:

Preparatory phase: The first step in the evaluation was a desk review of the most important documents covering project design and implementation progress that provided the basic information regarding the activities carried out to attain the desired outcomes and outputs and the actual achievements. The review was followed by preparation of questions and discussion points aiming at gathering information from

chosen respondents about attitudes, preferences and factual information linked to the performance indicators in the evaluation matrix. The list of documents reviewed is provided as Annex 4 to this report.

Evaluation Matrix: An evaluation matrix was constructed based on the evaluation scope presented in the TOR. The matrix is structured along the five GEF evaluation criteria for TEs and included principal evaluation questions. The matrix provided overall direction for the evaluation and was used as a basis for interviewing stakeholders and further review of the project implementation reports.

Apart from the evaluation questions on the relevance, efficiency, effectiveness, sustainability, and progress to impacts, the evaluation matrix also included evaluation questions on cross-cutting issues relating to the promotion of values from a human development perspective, namely questions on gender equality and on social inclusion. The Evaluation Matrix is provided as Annex 5 to this report.

Stakeholder interviews and site visits: Due to Covid-19 related travel restrictions, International Consultant did not travel to Sierra Leone. Online interviews were conducted with the key project stakeholders along with a few face-to-face meetings by National Consultant. The purpose of consultation was to verify the information from the project implementation reports, collect missing data and learn about the opinions of stakeholders and project participants. National Consultant also made site visits including to charcoal kilns and woodlots.

Assessment of Evidence: After the data collection phase, data analysis was conducted as the third and final phase of the evaluation through review of documents that were made available to the team by the project implementing partners as well as of other documents that the Evaluators obtained through web searches and contacts with relevant project stakeholders and beneficiaries. This process involved organizing and classifying the information collected, tabulation, summarization and comparison of the results with other appropriate information to extract useful information that relates to the evaluation questions and fulfils the purposes of the evaluation.

The original logframe in the Project Document was revised in 2016 during the inception phase of the project. Change was made during Project Inception workshop (PIW) by adding a new output/activities however no corresponding change in performance indicators was made. The project logframe, comprising 3 Components, 3 outcomes and 12 Outputs, has been used throughout as the basis for this evaluation and the TE has evaluated the Project's performance against these according to the current evaluation criteria provided to it by the GEF.

Triangulation of results, i.e. comparing information from different sources, such as documentation and interviews, or interviews on the same subject with different stakeholders, were used to corroborate or check the reliability of the collected information. The list of people interviewed and itinerary of the evaluation mission by National Consultant are provided as respective Annexes 2 and 3 to this report.

The TE team has made efforts to provide verifiable and evidence-based information that are credible, reliable and useful. The evaluators have followed a consultative, participatory, listening and learning approach in their work ensuring close engagement with the PMU and other project executors.

Table 3: Rating scale

Ratings Scales		
Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution	Sustainability ratings:	Relevance ratings
6: Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency 5: Satisfactory (S): There were only minor shortcomings 4: Moderately Satisfactory (MS): there were moderate shortcomings 3: Moderately Unsatisfactory (MU): the project had significant shortcomings 2: Unsatisfactory (U): there were major shortcomings in the achievement of project objectives in terms of relevance, effectiveness, or efficiency 1: Highly Unsatisfactory (HU): The project had severe shortcomings	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML): moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks	2. Relevant (R) 1.. Not relevant (NR) Impact Ratings: 3. Significant (S) 2. Minimal (M) 1. Negligible (N)
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A)		

1.3 Constraints

International Consultant's Evaluation mission was not possible due to Covid-19 travel restrictions. Most of the interviews were conducted online and some face-to-face meetings by National Consultant. The TE team failed to get any response from Director of MOE for his inputs despite several repeated attempts.

The project also faced major challenges in getting required documents and information from the project team. Due to changes in the project team, many important documents including progress reports, thematic reports, and financial reports took time to be made available. Due to lack of these important documents during the analysis phase, TE hence relies a lot on MTR report for past information and analysis. Also, final Project review report and financial documents were made available only towards the end of the project leading to lack of time for a detailed analysis.

1.4 Structure of the Evaluation Report

The structure of the TE report follows the structure provided in the ToR of the assignment. This report consists of an executive summary, the report body, and annexes. The body of this report is structured around the following chapters: it starts with an introduction to the objectives, scope, and methodology of the terminal evaluation (Chapter One), description of the project context and a summary of project facts (such as start date, duration, the context in which the project started), its objectives and stakeholders (Chapter Two), key findings (Chapter Three), and the conclusions, recommendations, and lessons learned from the project (Chapter Four).

Annexes at the end of the report include the Terms of Reference (Annex 1), field visit details and list of organizations and people interviewed (Annex 2 and 3), evaluative questions and methodology (Annex 5 and 6), and documents reviewed (Annex 4).

1.5 Ethics

The TE team has held to the highest ethical standards for the assignment. The TE team also confirms that evaluation was conducted in accordance with the principles outlined in the United Nations Evaluation Group (UNEG) 'Ethical Guidelines for Evaluations'².

² <http://www.unevaluation.org/document/detail/100>

2 Project Description and Development Context

2.1 Project Start and Duration

The Project Document was signed on 24 April 2015 for the duration of four years. The project start was delayed due to Ebola outbreak in the country and due to delayed hiring of the Project Manager. Project activities were officially launched in February 2016 with the recruitment of a project manager. Post MTR, the project had planned to seek an extension, however as extension was not given the project formally ended on 31 December 2019. The Mid-term Review was conducted in October-November 2018.

2.2 Problems that the Project sought to Address

The energy sector in Sierra Leone is in an early stage of development with only 23.4% of people having access to electricity³. In terms of energy for cooking, it is estimated that 72% of households in Sierra Leone use firewood for cooking followed by 27.7% households that use charcoal⁴. However, the use of firewood has been showing a decreasing trend over the years. Firewood use has decreased from 78.7% in 2011 to 72% in 2018 whereas the use of charcoal increased from 20.2% to 27.7% during the same period⁵.

The use of charcoal as a cooking fuel is also concentrated in urban areas with 66.7% of households in urban areas currently using charcoal having increased from 48.8% in 2011⁶. Therefore, the use of charcoal is increasing rapidly in the urban areas of Sierra Leone and this trend is less evident in rural areas. The role of charcoal as a cooking energy source and the ways in which it is produced and used has an important bearing in the energy sector and does have significant implications for the forestry and land-use sector as well. Likewise, a large proportion of the cottage industry also uses charcoal and firewood for thermal energy such as bakeries, fish smoking, tobacco curing, palm oil processing and produce from cassava, food vendors and restaurants.

The main problem with the baseline charcoal production as highlighted in the project proposal (2014) was the low conversion efficiency of the wood used as both fuel and feedstock for the pyrolysis process. The efficiency of traditional kilns was expected to be 10 to 20 percent while scope for efficiency improvement was considered as high as 30 to 42 percent. The charcoal stoves used in Sierra Leone range from the traditional metal stove also called the metal coal pot to more efficient cookstoves with an hourglass shaped metallic exterior and with a ceramic/clay liner which is similar to the Kenyan Ceramic Jiko (KCI) charcoal stoves. The penetration of highly efficient charcoal stoves is low and most of the charcoal stoves being used are relatively inefficient.

The combination of low levels of efficiencies in traditional charcoal kilns and charcoal stoves result in significant losses and increased demand for wood for carbonisation and also depletes the forest cover in the country. Inefficient use of wood results in higher GHG emissions. Additionally, the indoor air pollution caused by indoor use of fuelwood contributes to respiratory diseases, mainly among women and children and the marginalized poor.

High rate of urbanization, the use of inefficient charcoal production and cookstove technologies, lack of incentives to stimulate biomass supply and reduce demand, lack of technical and business skills,

³ IEA, IRENA, UNSD, WB, WHO, 2019, Tracking SDG 7: The Energy Progress Report 2019

⁴ Statistics Sierra Leone, 2019, Sierra Leone Integrated Household Survey (SLIHS) Report 2018

⁵ Statistics Sierra Leone, 2019, Sierra Leone Integrated Household Survey (SLIHS) Report 2018

⁶ Statistics Sierra Leone, 2019, Sierra Leone Integrated Household Survey (SLIHS) Report 2018

lack of access to alternative clean cooking technology and the lack of conducive policies and regulation are some of the barriers identified in the project proposal. The goal of the EEPUC Project was the reduction of GHG emissions in the domestic and industrial sectors of Sierra Leone through integrated and sustainable biomass resource production and utilisation, and promotion of sustainable biomass energy technologies in Sierra Leone using output based and market-based approaches.

2.3 Immediate and Development Objectives of the Project

The project aimed to bring economic, social and environmental benefits through the production of certified charcoal from sustainably sourced feedstock and through the promotion of improved cookstoves to reduce fuel wood demand, improve health and reduce greenhouse gas emissions. The project is well aligned with: i) the Agenda for Prosperity (2013-2017) to promote a low carbon, climate resilient, high growth, gender sensitive, inclusive and sustainable development path; and ii) the National Forestry Policy (2010) to promote the rehabilitation and conservation of forests, soil and water resources, and other relevant national policy and legal frameworks.

The implementation of the Project was expected to bring about the following benefits to the country and to rural communities:

- Economic benefits:
 - Energy, fuel wood and expenditure savings through certified, standards and labelled energy efficient appliances and production system
 - Access for people living in rural areas in Sierra Leone to alternative less polluting and efficiently produced energy
 - Increase in investments in greening up the energy value chain (cottage industry, food processing) facilitated by an established Centre of Excellence equipped with local champions and social entrepreneurs
 - Empowered local MFIs for developing competitive energy loan products and services
- Environmental benefits:
 - GHG emission reductions through energy efficient and renewable biomass usage
 - In partnership with ICRAF, establishment/supplementing of Farmer Managed Agroforestry to provide a sustainable supply of fuel wood to villagers and peri urban end users and to improve carbon stocks and environmental services
 - Reduced deforestation with benefits for improved biodiversity and ecosystem services
- Social benefits:
 - Employment generation at the community level through the empowerment of women and youth as social entrepreneurs equipped with technical, financial and business skills to participate as value chain actors through inclusive business and start up grant
 - Productive uses of energy and business resilience to changing climate
 - Reduction of health hazards and health bill and reduce sick days
 - Time savings, in particular, for women and children from collection of fuel wood, leading to more productive use of their time and contribute to MDG goals.

2.4 Baseline Indicators established

The baseline scenario as depicted in the project document can be characterized by the following;

- Although the MOE has developed the National Energy Plan and National Energy Strategy (2009), the capacity and capability to translate these plans and strategies into pragmatic and business solutions remains weak and at times, uncoordinated and piece meal;
- On the supply side, there is no incentive to manage woodlands better. Likewise, lack of incentives means that appropriate tree species for fuel wood and charcoal are not planted, that management to increase yields is not applied, that techniques to improve harvesting to stimulate regrowth or easier replanting are not applied;
- Limited use of high efficiency cook-stoves in the country as well as inefficient process to produce charcoal;
- Lack of market-based mechanism and value chain financing to support value chain actors. Manufacturers do not have sufficient capital to expand production and widely report this to be a major barrier to increasing sales of improved cookstoves;
- Low degree of local knowledge and expertise/capability/exposure to produce and utilize efficient charcoal and improved cookstoves solution;
- Lack of Standards, Certification and Labels on production and product information for end users to make informed decisions on their purchases (durability, user friendliness, emissions factors).

2.5 Main Stakeholders

The project development process involved many stakeholders including the private sector, financial institutions, and non-government agencies. Consultations were held with the Ministry of Energy, other relevant government departments and Research Institute in order to discuss the project concept and the gap identification. As per the project document, the following stakeholders were planned to be included in the implementation process. However, during the implementation, a few of these stakeholders were not actively engaged in the project.

Division of Energy (DoE), Ministry of Energy: The DoE was set up to conduct strategic planning on energy security and access issues and was mandated to introduce new energy resources and ensure efficient utilization of energy resources. The unit is responsible for organizing and conducting research and development in renewable energy and energy efficiency and conservation. It is also responsible for training public and private and CSO stakeholders and students in subjects like climate change and RE and EE.

Environment Protection Agency, Sierra Leone (EPA-SL), GEF Focal Point: The EPA-SL explored feasibility to develop a sustainable supply of feedstock through community woodlots as an output to complement the demand for efficient cookstoves and charcoal. The team was expected to work closely with EPA-SL in designing the GEF funded project and work to enhance their capacity in the coordination and networking of clean technology and to develop baseline data inventory monitoring system.

Ministry of Trade and Industry: The Ministry explored feasibility to address the wood energy use in the cottage industries like tobacco curing, fish smoking, cassava gari production, bakery and brick/ceramic production. The GEF project was expected to work closely with the Ministry to enhance their clean credentials and green technical capacity. As there was no directory on the number of

enterprises, this project was expected to develop a directory of microenterprises with information like volume of firewood used and also monitor the GHG savings from this sector.

Forestry Division (FD) is under the Ministry of Agriculture and Forestry. The project was expected to work with FD to promote micro-nursery and community forestry through tree replanting and Farmers Managed Agroforestry to ensure that there is a sustainable supply of renewable biomass to decrease pressure on the natural forests. This project was expected to work closely with the EU's REDD+ project that is managed by this division and complement their work to enhance the capacity of the Forestry experts at the national, district, Chiefdom and village level.

Ministry of Local Government and Rural Development: This ministry is mandated to design, implement, coordinate and evaluate the policies and is also committed to ensuring access of the citizens to professional training, enabling everyone to acquire and constantly update knowledge and skills to enter and / or remain working.

UNDP's Business Development Service (BDS) and Agribusiness Services Programme (SABI): The objectives of the BDS project is to operationalize business development services in different locations by creating self-employment opportunities for 250 youths as part of the Youth Employment and Empowerment Programme. Similarly, the SABI project was a joint initiative between the GoSL, UNDP, FAO and UNIDO, modeled after the SONGHAI Centre in Benin that seeks to transform the agricultural value chain, boost the attractiveness of the agricultural sector to youth entrepreneurs in urban and rural communities and create greater employment opportunities nationwide. The BDS and SABI were expected to complement Component 2 of the EEPUC project.

Micro-Finance Institution: BRAC is the largest MFI in Sierra Leone and was expected to contribute in developing a viable MFI business in Sierra Leone. BRAC also has UNCDF funding, it was expected to work with the project to design loan and service products for scaling up charcoal and cookstove production.

World Food Program (WFP): WFP has been operational in Sierra Leone since 1968. WFP operates in the Southern, Northern, Eastern and Western regions with an office in Freetown and one sub-office located in Kenema. In collaboration with the GoSL and other partners, WFP pursues the goal of feeding the hungry poor by supporting reconstruction and rehabilitation following the devastating civil war in the 1990s.

Renewable Energy Centre (REC), Government Technical Institute, Freetown: Set up in 1964, the institute has about 3,000 students doing 3 year diploma courses in various technical disciplines. The center has experience in developing solar, hydro and biogas technology. The project was expected to work with REC to strengthen the technical and financial capacity and also explore the potential to develop REC as a Centre of Excellence in RE. REC contributed in setting up the Cookstove and Charcoal Development Center (CCDC) for the testing and certification program with support from Aprovecho.

ECOWAS Renewable Energy and Energy Efficiency Center, Cape Verde (ECREEE): ECREEE as ECOWAS' Center of Excellence was established to enhance regulatory, financial and technical capacity of ECOWAS members in formulating RE and EE policies and strategies. This project was expected to work with ECREEE's West African Clean Cookstove Alliance (WACCA) initiative to strengthen their support in Sierra Leone especially in the development and harmonization of a standard and label for improved cookstoves.

WestWind Energy: The founder of WonderStove was the pioneer who started to introduce the Kenyan charcoal stove in 1989. WonderStove had trained many early workers who also started their own

production. WonderStove provides a 6 months guarantee and provide repair service beyond the warranty period. They have been producing their own clay liner and contract out some of the production.

Toyola Energy: Toyola Energy Limited started producing and distributing energy efficient charcoal stoves for domestic users in the urban and rural parts of Ghana and is now seeking to expand their business model to Sierra Leone. Toyola have implemented an innovative business model that includes the poor along the whole value chain as suppliers, manufacturers, retailers and customers and accounts for positive economic, social and environmental effects.

Bockarie Kargbo at Lunsar: Started making cookstove liner and cookstove in 1993 and had trained other apprentice. Bockarie used the clay from their site to make liner as well as brick and compressed blocks. The owner is one of the pioneers and partnered with WonderStove to introduce the stove from Kenya. Access to high quality clay is critical for making the durable liners for the stove as well as for making high quality brick with high refractive properties. As a pioneer and given his excellent factory space, Bockarie was expected to train people and enterprises to produce liners for the 15,000 stoves.

Charcoal Producers Association (CPA): CPA serves its members through advocacy and dialogue with government on policy and regulatory issues as well as help to promote the safe and sustainable production and use of charcoal. This project was expected to partner with CPA to strengthen their capacity and to promote the use of efficient kilns and sustainable supply of fuelwood for charcoal production.

Environmental Foundation of Africa (EFA): The Environmental Foundation for Africa (EFA) “aims to protect and restore the environment in West Africa. It has been active in Sierra Leone for over 15 years. EFA leads environmental education and awareness raising campaigns, restores degraded lands and conserves forests, minimizes the impacts of civil war on the environment and its inhabitants, and equipped thousands of people with sustainable livelihood skills such as agroforestry.” EFA is currently conducting a household energy usage survey as part of the DFID funded CKDN project ‘Renewable Energy Empowerment in Rural Sierra Leone: A Vision to Electrify Rural Sierra Leone’. EFA was expected to share data with this project for its use. This project was expected to benefit from EFA’s experience from working with local community and beneficiaries in the scaling up of kiln and cookstove production as inclusive business.

International Center for Research in Agroforestry (ICRAF): The World Agroforestry Centre (ICRAF) in Sierra Leone supports the ‘Building Biocarbon and Rural Development in West Africa Project (BIODEV)’. BIODEV is working in Guinea, Mali and Sierra Leone to demonstrate development and environmental benefits from undertaking a “high value biocarbon approach” across large landscapes. The four-year project, implemented in partnership with the Center for International Forestry Research (CIFOR) and regional and international universities, is funded by the Government of Finland. This GEF funded project planned to work with ICRAF to develop sustainable rural development interventions for securing food and bioenergy access.

EU Energy Initiative Partnership Dialogue Facility (EUEI-PDF): EUEI PDF, at the request of the Sierra Leone government, is assisting to formulate a Household Cooking Energy Plan. This was expected to help to develop a comprehensive Household Cooking Energy Plan for Sierra Leone and will build on the scoping study that EUEI-PDF had undertaken in 2011 with the Ministry of Energy. The project will be carried out under the framework of the Africa-EU Renewable Energy Cooperation Project (RECP) and will be implemented in two phases.

Welthungerhilfe (WHL): WHL started its engagement in Sierra Leone in 2003. Since then, it has implemented around 20 projects working on WASH, agricultural development and income generation for disadvantaged population. WHL is the implementer of the WAPFR project which is working on the reduction of fire wood for fish-conservation industry (fish-smoking) in Western Area Peninsula.

WAPFR (Conservation of the Western Area Peninsula Forest Reserve) and its Watersheds: WAPFR is a Government project, funded by EU and is introducing participatory processes in decision making for the sustainable use of natural resources that contribute to the reduction of rural poverty in the Western Area Peninsula and to conserve and sustainably manage the Sierra Leonean Western Area Peninsula Forest Reserve (WAPFR) and its watershed. This project was expected to also build a new and final boundary of the forest reserve with an official enforcement of this boundary. The WAPFR is implemented by EPA-SL (Environment Protection Agency – Sierra Leone). The GEF funded project was expected to add incremental value to the activities under this project in order to generate significant global environmental benefits, one of which is ensuring that charcoal production does not lead to continuous deforestation.

GERES (GERES): Through the StovePlus program and in collaboration with the Global Alliance for Clean Cookstoves (GACC), GERES is providing technical support to project developers in West Africa in the areas of baseline assessments, market studies, improved cookstove production, demand creation and testing. This GEF funded project was expected to work with GERES in scaling up improved cookstoves in Sierra Leone.

CARE: CARE UK is working with USAID in Northern Sierra Leone and Guinea on the STEWARD forestry project. They are working with a number of communities on improved land use management and agriculture.

BioClimate is based out of Edinburgh, Scotland, with an active team of Sierra Leoneans working on sustainable forest management, supported by the STEWARD Project. They focus on payment for environmental services (PES) for improved forestry and land use management using the Plan Vivo carbon management approach.

Regional Collaboration Center (RCC), UNFCCC: In order to address the under representation of CDM projects/programs in least developed countries (LDCs), RCC in Lome, Togo is tasked to provide financial and technical support to strengthen the capacity of the designated national authorities (DNAs) and project developers in West Africa for meeting CDM requirements. In collaboration with UNDP, this GEF funded project was expected to seek to develop the improved cookstove and charcoal kilns programs as bankable and verifiable carbon projects.

Food and Agriculture Organization (FAO): FAO has developed the Bioenergy and Food Security (BEFS) Approach for Sierra Leone that seeks to assist policy-makers in assessing the interplay between natural resource availability, bioenergy production potential, rural development and food security, and in strengthening their capacity to manage the trade-offs associated with bioenergy development.

Energy for Opportunity (EFO): EFO is a national NGO that was established in 2005. The organization is currently operating in six districts in the country focusing on energy, sanitation, clean water, health promotion and agriculture. EFO has 25 permanent staff with extensive experience in community mobilization, battery charging, clean water projects, and community energy projects, including carrying out fuel wood trade, energy assessments and surveys, solar capacity design, installation and training.

Aprovecho Research Center (ARC) is a non-profit corporation established in 1976 and it is dedicated to conducting research, developing and disseminating appropriate technological solutions for meeting the basic human needs of refugees and impoverished people and communities in the developing world. This GEF funded project was expected to explore the feasibility to collaborate with ARC to set up stove testing labs in Sierra Leone in collaboration with regional ECREEE in Cape Verde.

Consumers: The consumers, especially women, were expected to be important beneficiaries of the bioenergy program, as they are the ones to reduce the share that energy represents in household budgets. However, given the relative lack of knowledge of many buyers in Sierra Leone, an information and outreach campaign was expected to be needed to explain the value of considering the total cost of ownership before making an appliance purchase.

University of Njala, Freetown: This is the major institution of higher education in the country. The Department of Community Development leads local researchers and supervises the data collection and analysis.

2.6 Expected Results

Goal: Reduction of GHG emissions in the rural household and industrial sectors of Sierra Leone through integrated and sustainable biomass resource production and utilization, and promotion of sustainable biomass energy technologies in Sierra Leone using market-based approaches.

The project aims to achieve its objective through three components, 3 outcomes which have a total of 12 outputs. The project was designed to address the problem by improving/establishing institutions to reduce GHG emissions, make biomass resources production and utilisation sustainable, and promote sustainable biomass energy technologies in Sierra Leone using market-based approaches.

Table 4: Project Results

Component 1. Policy and regulatory frameworks on the use of more efficiently produced charcoal and improved cook stoves	
Outcome 1: Strengthened institutional capacity on biomass resource utilization at the national, regional and community level. Operational effective policy, legal, and regulatory frameworks and review mechanisms on biomass energy technology applications.	Output 1.1 Adequately trained and capable decision-makers and relevant stakeholders (from EPA-SL, ministries, private sector, rural communities, etc.) leading efforts, communicating and managing more efficiently produced charcoal and improved cookstove utilization in an integrated manner
	Output 1.2. Formulated, approved and enforced policies, laws and regulations on more efficient charcoal and improved cookstoves production
	Output 1.3 Developed standards and certification protocols for efficient charcoal and improved cookstove
Component 2. Development of public-private initiatives for the improved and more efficient production of charcoal and the scaling up of improved cookstove production	
Outcome 2: Increased number of investments on improved, more efficient charcoal and improved cookstove production in Sierra Leone	Output 2.1 Established partnerships between the public and private stakeholders involved in the value chain of charcoal production and utilization
	Output 2.2 Developed incentives through carbon finance, microfinance, rebate and loan guarantee schemes to scale up sustainable charcoal and improved cookstove businesses

	<p>Output 2.3: Implemented and operational i) 300 locally produced industrial stoves for income generating local enterprises such as fish smoking, bakery, palm oil processing and tobacco curing and ii) 700 institutional stoves for school, prisons and hospitals.</p> <p>Output 2.4: Implemented and operational 1,000 locally produced efficient kilns for the sustainable production of charcoal.</p> <p>Output 2.5: Locally produced 14,000 energy-efficient stoves in rural households for cooking needs implemented and promoted for replication</p> <p>Output 2.6 Established and operational framework for the phase-out of traditional charcoal kilns and cook stoves</p>
Component 3. Improved, more efficient production and efficient utilization of certified charcoal and cookstove	
Outcome 3: The production and utilization of certified charcoal and certified improved cook stoves are common practices in Sierra Leone.	<p>Output 3.1 Developed gender sensitive capacity development and modules for the production and utilization of certified charcoal and ICS</p> <p>Output 3.2 Developed and implemented promotional schemes on the social, economic and environmental co-benefits of improved charcoal and improved cook stoves to create demand, generate good buy-in and willingness to pay</p> <p>Output 3.3 Sensitized key value chain actors through public awareness campaign and capacity development</p>

3 Findings

3.1 Project Design/Formulation

The project aimed to overcome the regulatory, institutional, technical, financial and social barriers by using elements linked to policy, technology, finance, and awareness programs. The project document was designed with defined objectives, outputs, activities, and targets. The implementing and executing institutions were involved in the project from the project design phase itself. The programme has properly identified the barriers against use of ICS and improved charcoal production.

Many of the intended outputs were designed to be goal-oriented, however, in retrospect many of the activities and targets were too ambitious in nature given four-year timeframe and limited technical and financial capabilities available in the country to support these activities. Following section analyses important aspects of the EEPUC project design.

3.1.1 Analysis of Logical Framework

The Project Document includes a results framework with indicators to monitor the progress towards achieving outcomes that reflect the deliverables (outcomes/outputs). The original results framework in the project document has a long list of 24 indicators that have many inconsistencies and often overlap or duplicate.

Indicators are provided for broad outcomes and often overlap with other outcomes and have no direct attribution on how outputs and activities will contribute to the achievement of these indicators. Some of these examples are highlighted below.

Outcome 1- Strengthened institutional capacity on biomass resource utilization at the national, regional and community level. Operational effective policy, legal, and regulatory frameworks and review mechanisms on biomass energy technology applications

Key outputs as highlighted in the project document Strategy section:

- Creation, establishment and operation of Research, Knowledge, Learning and Coordination Center (RKLCC) at DOE: no indicator in the logframe
- Developed standards and certification protocols for efficient charcoal and improved cookstove: no indicator in the logframe

There are several instances of overlapping and non-attributable indicators. For example, one of the indicators under outcome 1 is use of 15,000 improved cookstoves in the country by the end of 4th year, same indicator is used again under outcome 2. Another indicator under outcome 1 is volume of funding made available for Biomass Energy Technology (BET) application projects is US\$ 200,000. The same indicator is used for outcome 2, but with a target of US\$ 500,000. There is no justification provided on how these indicators are different and what is included or excluded in these indicators if these indicators point to some different measurement parameters. Similarly, other outcomes have overlapping indicators with no direct attribution possible with listed outputs and activities.

During the inception phase, a new activity was added to establish woodlots to strengthen supply side for reducing pressure on the forest. A new indicator (number of hectares planted) was supposed to be included to track performance against this activity. It should be noted that annual work plans or PIR do not track this indicator. It is strange as at the project closure new output consumed 27.4% of overall budget, however there was no specific indicator developed and reviewed as part of the M&E. There was significant progress made for this activity during the project duration, unfortunately as no

performance indicator was developed or tracked, overall performance as reflected in the tracked results framework is unable to capture such progress.

Design issues are also highlighted in PIR 2019 by UNDP-GEF Technical advisor. The report mentions *‘the project goal was included in the results framework, which does not follow standard UNDP-GEF practice as typically a project will contribute to a goal but will not achieve it on its own. In this case, indicators and targets were also included at the goal level, which again deviates from standard practice’*.

In summary, the logical framework was not well-designed, had missing indicators for key outputs, inclusion of many indicators not directly attributable to project, lack of mid-term targets, and lack of identification of appropriate sources to collect and validate data. The indicators are far too many and, in most cases, have weak links to the outcome statement, or the baseline and end of target values. This could have affected its usefulness as a tool for project management and M&E.

3.1.2 Assumptions and Risks

TE requires an assessment of the project assumptions and risks as set out in the Log Frame/Results Framework, including a review of the stated assumptions and risks, whether they are logical and robust and have helped to determine activities and planned outputs. It also needs to review any new risks that may have arisen during the project lifetime.

There was no mention of specific assumption for the successful implementation of the project in the project document under section on assumptions & risks. The document contains an assessment of risks that could hinder project implementation and identifies overall risk as medium category. The risk log was updated as part of the annual PIR.

Table 5: Risk identification in project document

Type	Level
Policy and Legislative Risk	Medium
Technical Risk	Low
Economic and political Risk	Medium
Financial Risk	High
Marketing & Distribution Risk	Low
Information Risk	Low

Some of the other risks which were encountered by the project but missed in the project document include:

- Technical capabilities available for effective delivery including financial structuring skills;
- One of the main partners BRAC was expected to play an important role for financing as conceptualised under the EEPUC project. A total amount of US\$ 1,682,174 was planned for co-financing by BRAC. However, BRAC backed out as soon as project started;
- The alternate method to facilitate financing through grants was delayed due to long review of guidelines on the use of GEF-funded projects for grants from the UNDP Regional Office.

3.1.3 Lessons from other Relevant Projects incorporated into Project Design

The project document does not include a specific chapter to highlight the lessons from other projects that have been incorporated into project design. However, various sections of the project proposal drew lessons from similar local, national, regional and international programs. Project development also investigated the financial mechanisms of similar programs as the EEPUC in Sierra Leone as well as other countries. Project also drew lessons regarding addressing barriers from the former and existing projects like the Participatory Rural Energy Project and Second National Communication.

3.1.4 Planned Stakeholder Participation

The project was formulated involving a wide spectrum of stakeholders (through a Project Preparatory Grant – PPG). This ensured that the perspectives of all relevant stakeholders informed the project design, and that it drew on lessons from similar projects. The project document lists many governmental, NGOs, public and private sector agencies as potential partners. Many of the critical activities are designed keeping in mind active participation and engagement of these partners. The detailed descriptions as provided in the project activity for the critical activities clearly outline roles to be played by these stakeholders.

The TE therefore finds that the project design was based on a clear analysis of stakeholder needs; that capacities of the executing institution and its counterparts were adequately considered; the partnership arrangements were identified properly at the project entry. However many of these partnership arrangements failed to provide desired support to the project during the implementation phase leading to significant failures in terms of achieving projected outcomes and goals.

3.1.5 Replication approach

The overall project strategy of combining policy, technical and financial framework for the charcoal value chain is potent enough to ensure replicability. Additional activity added during the inception phase to support development of woodlots adds to the long-term sustainability for the charcoal supply sources.

The project has activities to promote awareness among policy makers, private sector, and end users. Development of certification and labelling standards were also proposed to create enabling conditions to facilitate the replacement of traditional cook stoves at country level.

3.1.6 UNDP Comparative Advantage

UNDP has been involved in Sierra Leone including work in the field of Natural Resources Management (biodiversity conservation, environment protection), sustainable land management, disaster risk reduction, Renewable Energy and Energy Efficiency, Climate Change (including Climate Change Mitigation, Climate Change Adaptation), Poverty Reduction, Conflict Prevention and Democratic Governance. In energy sector, UNDP has been an important partner for MOE in Sierra Leone.

UNDP comparative advantage lies in its experience in integrated policy in different national processes, policies and frameworks. UNDP's assistance in designing and implementing activities is consistent with both the GEF mandate and national sustainable development plans. UNDP at the global level has been involved in designing and implementing similar projects under this focal area. UNDP Sierra Leone country office has the adequate capacity for implementation of the EEPUC project with the needed support from the region as well as global UNDP/GEF offices. The project has benefited from UNDP experience from the project development phase to implementation.

3.1.7 Linkages between project and other interventions within the sector

This EEPUC project identifies several national and regional projects and other interventions within the sector and a potential mode to link with them. A few of these projects include:

- The GEF Small Grants Programme;
- Sierra Leone Agri-business Service Initiatives;
- World Food Program (WFP) in Sierra Leone;
- ECREEE's West African Clean Cookstove Alliance (WACCA) initiative;
- DFID funded CKDN project 'Renewable Energy Empowerment in Rural Sierra Leone: A Vision to Electrify Rural Sierra Leone';

- World Agroforestry (ICRAF) in Sierra Leone supports the 'Building Biocarbon and Rural Development in West Africa Project (BIODEV);
- GIZ EnDev programme;
- EU Energy Initiative Partnership Dialogue Facility (EUEI-PDF); and
- Conservation of the Western Area Peninsula Forest Reserve, a government project funded by EU.

Section 2.5 (Main Stakeholders) of this report provides details on how linkages were proposed to be established with these projects and interventions.

3.1.8 Management arrangement

The project was implemented under the DIM (Direct Implementation Modality), and UNDP was the GEF Implementing Agency for the project, with the UNDP Country Office responsible for day-to-day implementation. The MOE acts as the main beneficiary and executing partner.

The EEPUC project was designed to receive high level guidance and oversight from the Project Board (PB) or the Project Steering Committee (PSC) which was chaired by the Permanent Secretary, MOE. The project envisaged establishing a Project Management Unit (PMU) to be hosted within the MOE, to execute the project. The PMU was proposed to be composed of a Project Director (from MOE), a full-time Project Manager, a Project Assistant and team leaders for all the project components (to be deputed by MOE). The Project Director (PD) seconded from MOE was to be responsible for overseeing overall project implementation and ensuring that the project objective and outcomes are achieved in a timely and cost-effective manner. The PD was to be assisted by the full-time Project Manager (PM) reporting to the PSC on project progress and plan and seeking guidance to resolve emerging issues. Initially PMU was housed in the MOE but it was shifted back to UNDP towards the end of the project.

A National Bioenergy Steering Committee (NBSC) was also proposed to be formed to bring together the key Government ministries and private sector representatives (e.g., producers, retailers, consumers) in order to provide strategic guidance to the PMU and define the priorities of the Bioenergy roadmap and policy and legislation initiative. Though, a steering committee was formed but no formal NBSC structure was formed by the end of the project.

The TE finds that the design of management arrangement was appropriate. However, the PMU had no executive powers over budgets and overall project plans, thus majority of project decisions required input of the PB. Due to inability to conduct timely PB meetings and lack of strategic ownership by MOE, approvals of plans and major decisions were delayed. This has severely impacted the execution.

3.2 Project Implementation

This project has faced several challenges since start including delayed start date, an overly ambitious project design, complex financing scheme planned in the project document, a longer than expected revision of UNDP's financial rules and regulations, co-financing of nearly \$1.7 million from BRAC that did not materialize, and lack of adaptive project management for the first three years of the project.

The project has made significant progress post MTR, however as no time extension was possible the project closed without being able to achieve desired results. It was moderately likely that project would have met most of the indicators if there was more time available to complete the remaining tasks.

3.2.1 Adaptive management (changes to the project design and project outputs during implementation)

Adaptive management means that the PMU must constantly keep referring to the goal and objectives and critically assessing how the activities are contributing to the outputs and how those outputs are leading to the objective.

The project started nearly one year late due to Ebola outbreak, late hiring of the Project Manager, and late approval of annual work plan. Limited time available for the implementation, complex and wide range of planned activities, limited support from executing partner (MOE), and faulty logframe required a substantive adaptive management plan at the start which did not take place.

The project design has been overly ambitious with more than 44 planned activities with limited budget and timeframe. Many of the activities were heavily dependent on external partners and when these partnerships did not materialise, then project suffered. There was no back-up plan available for execution of these activities. The project management failed to do a course correction during the inception phase, rather than simplifying the activities, the project added one more activity on woodland management. Addition of woodlot development was a substantive activity which finally resulted in nearly 27.4% consumption of overall budget. There was no budget revision made across activities/outputs after addition of the new activity. In the hindsight, a detailed review of planned activities, outputs, and outcomes should have taken place which should have also considered only 3 years available for the implementation.

The project management also failed to reach out to partners identified for operationalisation of financial instruments earlier in the implementation phase. It is surprising that annual work plan 2016 did not include any major activities under component 2 and 3 especially those related to financing. PIR of 2016 and 2017 also failed to identify risks and challenges associated with financing scheme due to stepping back by BRAC. Lack of appropriate performance tracking and risk assessment is also seen missing as evident in PIR 2017 wherein overall performance is considered as moderately satisfactory and risk as low despite stepping back by BRAC. The project failed to track and assess obstacles and how they were going to impact overall delivery.

MTR mentions late responses and lack of technical support from Ministry of Energy and delay of board meeting in PIRs for 2016, 2017, 2018 and 2019. To address this problem, it stated that Steering Committee suggested rotational chairmanship but no action to resolve the problem was found. PIR of 2016 also indicated that the indicators will be revised so that they are appropriate as per the outcomes envisaged in the project. However, indicators were not changed or sharpened for accurate assessment of the project.

MTR conducted in 2018, identified several issues in the project and recommended no cost extension for one year. Last year of the project witnessed significant changes in the project management including hiring of CTA, renewed focus on critical outputs. As per the ProDoc, implementation of the financing scheme was a critical requirement in many of the outputs. It was delayed because of multiple reasons stated above and in other sections. However, in the year 2019 project was able to get all important elements in place for the operationalisation of the financing scheme including partnership, design of financing scheme, fiduciary approvals, and roll-out plans. Unfortunately, the project did not get time extension. It is likely that if there was a time extension, the project would have been able to meet most of the outputs.

In summary, the project's adaptive management actions can be rated as unsatisfactory especially during the first three years in adjusting the implementation to changing circumstances and initial flaws in the project design. The project made improvements during the last year of its implementation and it had demonstrated adaptive management. Overall adaptive management is considered as moderately unsatisfactory.

3.2.2 Partnership Arrangement

Project was planned to implement following the UNDP DIM modality in close coordination with the Ministry of Energy, Sierra Leone. However, various project reports mention that the project was not able to receive quick response from the project board and project board meetings were not held on scheduled time. As a result, annual work-plan development, approval, procurements were delayed and these delayed implementation of activities. The project board meeting minutes also point to lack of strategic ownership from MOE as one of the major obstacles faced by the project during the implementation phase.

The project established a number of partnerships which were important during implementation and will continue to support efficiency in the charcoal value chain in future. The project established partnerships with ECREEE and supported printing and popularization of the renewable energy and energy efficiency policies developed by ECREEE. The project also supported validation of the Clean Cooking Action Plan developed by ECREEE. The project has also subsequently requested ECREEE to offer continued support to CCDC beyond the project completion.

The project has also established partnerships with GIZ Endev which resulted in support from GIZ in terms of knowledge management. GIZ also commissioned a study on charcoal production in Sierra Leone in 2019 which was done in coordination with the project. GIZ has supported and co-financed the establishment of a financing scheme with Ecobank Microfinance for enhancing market development of charcoal stoves. GIZ is expected to offer support to CCDC for its operations and to the Sierra Leone Standards Bureau (SLSB) for development of standards for charcoal cookstoves. These important linkages can be attributed to the project and will help in sustainability of many of the activities under the EEPUC project.

At the sub-national level, the project also established partnerships of community forestry with Mawoma, Makolerr, Robana and Moyamba Junction communities in Port Loko and Moyamba Districts respectively.

Other partnerships planned in the project proposal had mixed results. A few with private sector agencies including WestWind energy have worked well, however some partnership for financing (with BRAC) did not work out as planned.

As per the project document and analysis presented in the MTR, many activities of the project were linked to loan, grant and rebate scheme and as per earlier agreement, the financial institution of the Sierra Leone named BRAC was expected to take responsibility of management of this scheme but it stepped back at the time of implementation. This created big challenge to the management and due to this implementation of several activities were affected. As per UNDP rules, it is not allowed to loan money so UNDP initiated communication with Regional Office (RO) for their advice. But

communication started only on 30th October 2017 (followed in 26 Feb 2018 and 17 April 2018). This indicates that project management came to know about BRAC's decision only in the middle of 2017 and not at the start of the project itself.

Another such example related to weak engagement is related to Output 1.3 'Developed standards and certification protocols for efficient charcoal and improved cookstove'. The project envisaged development of a Cookstove and Charcoal Development Center (CCDC) as well as development of standard from fuel-efficiency and emissions testing of all existing cookstoves in Sierra Leone.

These two activities required close coordination with relevant partners including Government Technical Institute (GTI) and Sierra Leone Standards Bureau (SLSB). Equipment for the lab were procured during the early stage of the project but then it was found that the facility at GTI to setup CCDC was not ready and it took close to 3 years to setup this infrastructure. The CCDC became operational only in March 2020. Ideally a close coordination with GTI from early stages would have avoided such delays between procurement and commissioning.

This testing facility can only be used if there is a relevant regulatory mechanism in place such as standards for cookstoves or mandatory requirements to test cookstoves. CCDC officials and private sector players confirmed during the consultation process for TE that the lab will only be useful when such standards and mandatory testing requirements are in place.

However, at the design phase, the project did not identify SLSB as an important partner for development of standards & certification program. The project design inaccurately assumed that CCDC will be developing such standards and did not identify a role to be played by SLSB and any partnership requirements with them. This was only corrected in the latter part of the project duration wherein SLSB was engaged. SLSB is now in the process of developing standards as part of its regional collaboration initiatives.

Weak coordination with the partners during initial phases of the project is one of the reasons that the project has failed to deliver on most of the expected outputs and outcomes. If management had coordinated with the partners closely from the beginning of the project, then it would be aware of partners' intention and prepare accordingly to prepare alternative approach to fill the gap. Post MTR, the project team made focussed efforts for engagement with critical partners which resulted in major progress towards outputs. Many of these partnerships especially with CCDC, SLSB, ECREE, community partnerships, and with micro-finance companies are expected to make further progress towards the project goals even when project is closed.

3.2.3 Feedback from M&E Activities used for Adaptive Management

Project M&E includes quarterly progress reports, annual progress reports, and PIR. However, most of the reports during the initial phase of implementation (2015-2017) failed to provide clear recommendations for future orientation in addressing key problems in lack of progress. None of the monitoring reports capture year wise targets and actual performance. Given the lack of details available in the progress reports, TE team found it difficult to assess what activities were planned during the year, what was the actual performance, what were the challenges faced.

At the inception phase, a new output/activity related to woodland development was added to the project, however there was no new indicator added to monitor and evaluate its performance. It is strange as at the project closure, new output consumed 27.4% of overall budget, however there was no specific indicator developed and reviewed as part of M&E.

MTR conducted during October-November 2018 identified critical issues with the project and provides clear recommendations for course correction. The MTR Report was developed and submitted nearly one year before planned project closure date, hence there was very tight time available for full implementation of MTR recommendations. A few of the key recommendations from MTR included:

Table 6: MTR recommendations

Rec #	Recommendation	Status at the project closure stage
Outcome 1		
1.	The Energy Policy is very important to support energy related activities. Project provided support to review and update the National Energy Policy 2009 but it is still in draft form. Hence it is recommended to follow up with the Ministry of Energy for approval and endorsement. After approval, there should be activities to make people aware of the policy and the important provisions that supports people.	National Energy Policy and Bioenergy policy have been finalised. Awaiting enactment by the government. The Clean Cooking Action Plan has been validated and is also awaiting enactment.
2.	As early as possible, establish RKLCC and install equipment of the lab and train staffs so that research and certification activities could be initiated.	Lab equipment have been installed and commissioned at CCDC. Training have been provided to relevant stakeholders.
3.	To develop standard for Cookstoves, furnaces, Kilns and charcoal project does not have to wait for establishment of the CCDC and lab. Lab is needed to test for certifying but standard could be developed using references of neighboring countries and available scientific documents. Hence project should immediately start process of developing National Standard of Charcoal, kiln, stoves and furnaces.	Early stages of development.
Outcome 2		
4.	As per project plan, after accomplishment of first round of work of production and distribution of kilns and cook stoves and also implementation of the loan and rebate scheme, monitoring and evaluation should have been done to provide feedback for improvement in technology and also scheme and replicate new areas. Project is pushed far behind so need to initiate remaining activities immediately and also follow implementation with standard monitoring and evaluation. Within the remaining one-year period, project should meet its targeted activities of financial scheme implementation, kiln establishment and stove production and trainings.	Project financing scheme has been designed and micro-finance partnerships were forged. Due to non-extension of the project, financing scheme roll-out did not take place.
5.	Also establish targeted number of kilns and produce targeted number of cook stoves in the targeted areas i.e. rural communities within the coming one year.	Lack of roll-out of the financing scheme impacted this output.
6.	Project also has activities of upscaling based on monitoring of first phase of implementation. But for the upscaling and impact assessment part of the project activities, time may not be sufficient. Hence it	Extension was not possible

	is recommended to extent project for one additional year without additional cost i.e. no cost extension.	
	Outcome 3	
7.	Project should consider to establish bigger woodlots for demonstration (piloting) of rotational harvest for wood supply for charcoal production and wood for cooking stoves. Woodlot program should include other income generation activities e.g. agro-forestry with cash crops.	The project has established community partnerships for further management of woodlots. The Government of Sierra Leon has also decided to expand this further and establish woodlots in many part of the country in next few years with an aim to plant 5 million trees in 4 years.
8.	Immediately start training and awareness campaign on the use, maintenance and benefits of energy-efficient kilns and cook stoves for village level producers and consumers as they are the target group of the project.	Limited
8.	Community were asking for food to work program to manage woodlot. This practice will not make program sustainable beyond the project life. Hence awareness activities should include information to make communities understand that those woodlots are for their use and they are the beneficiaries so they also have to contribute their time and effort. Monitoring of woodlots by few people may not be possible as they also have to work for earning food so they could make plan where all of the members will contribute certain hours in a week in rotational basis. By making such arrangement, individuals do not have to spend much time. There was also scarcity of water in the woodlot areas, if it is possible for the project then should arrange water.	The project has established community partnerships for further management of woodlots. The Government of Sierra Leon has also decided to expand this further and establish woodlots in many part of the country in next few years with an aim to plant 5 million trees in 4 years.
	Project Implementation and Adaptive Management	
9.	M&E activities were weak. Implementing agency should immediately establish M&E mechanism so that project activities could be monitored closely and feedback is provided on time to strengthen adaptive management. They should also permanently arrange qualified expert in the Ministry of Agriculture, Forest and Food Security to assess the carbon sink and also in Ministry of Energy to assess emission reductions from improved stoves and kilns because these activities need to be carried out on regular basis even beyond the project life. Such monitoring and verification will support DNA of the government with the data (quantity of carbon stock information and decrease in emissions)	No progress on carbon sink and emission reduction assessment made.

	to claim from carbon finance. Besides, as provisioned in the project activities, it is necessary to conduct impact assessment to see the impact of project intervention.	
	Since large amount of works are not accomplished, remaining time will not be sufficient so it is recommended to make one year no cost extension (already mentioned in recommendation no. 6)	
	Sustainability	
10.	Continuous technical support is needed for the community members and producers of charcoal and cookstoves to continue their activities beyond the project life and for that, Ministry of Energy and Ministry of Agriculture, Forestry and Food Security has to allocate budget for the additional staff needed to provide technical support to the rural communities and also producers of charcoal and cook stoves.	CTA was hired by the project
11.	Need to generate awareness among the community members on environmental issues, climate change, and benefits of woodlots, cook stoves and efficient kilns to attract them in management of woodlots and also use of improved cook stoves and kilns beyond the project life.	Limited
12.	To strengthen institutional sustainability of the Project, community institutions need to be made self-reliant. Capacity enhancement of the government and community institutions will also help to continue the activities and arrange sustainable technical feedback beyond the project life.	Limited

Post MTR, Chief Technical Advisor (CTA) was hired and project management team was also staffed with new members. During the last year of the implementation phase, project management activities had ramped up, several capacity building programs were conducted, new partners were engaged, and alternative methods for financing were explored. Based on the information available from documents and inputs received from stakeholders, it may be said that adaptive management during 2019 was much more effective compared to the first three years.

3.2.4 Project Finance

As per the project document, the total project cost is US\$10,589,670 which includes US\$7,857,496 in cash and US\$2,732,174 in kind. Of the cash contributions US\$1,768,182 is from GEF, US\$200,000 from UNDP, US\$5,016,000 from SLEPA-EU Cap Dev, US\$823,314 from ICRAF BioDev and US\$50,000 from GERES (Table 1 and 4). Of the kind contributions, US\$500,000 from Government of Sierra Leone (GoSL), US\$1,682,174 from BRAC, US\$200,000 from WestWind Energy, US\$100,000 from Toyola Energy, US\$150,000 from Bockarie and US\$100,000 from Samu Enterprise.

Co-financing was well planned and clearly mentioned in the project document. But there was big difference between committed contribution and actual contribution. By the time of TE, only limited co-financing was made available from the partners. Initial inability of BRAC to cooperate with the project was a major factor in the low levels of co-financing. The in-kind co-financing from the government did not materialize. In-kind co-financing from Westwind Energy, Toyola Energy, Bockarie and Samu Enterprises could not be leveraged as the financing scheme for efficient kiln and cookstoves could not be rolled out. It is also understood that baseline/parallel funding from SLEPA-EU CC Cap Dev

and ICRAF BioDev focusing on community forestry activities did not materialize due to early project closures due to the Ebola pandemic outbreak.

Overall project was able to utilise nearly all of its budget planned from GEF grant. Initially US\$ 1,071,680 was planned to be deployed as financing in form of grant, loans, and loan guarantees. However, as it failed to take off, project has utilised the budget for other activities including US\$ 484,955 for woodland development (27.4% of overall budget).

The project did not maintain detailed output and activity wise costing and hence it was not possible to assess actual fund utilisation against budget.

Table 7: Project financial budget and actual utilization

Project components	Budget approved (US\$)	Disbursed as on							
		2015	2016	2017	2018	2019	2020	Total spent	% of budget spent
Component 1	125,000	33,327	85,531	45,957	-39,618	-12,606	0	112,591	90%
Component 2	1,300,000	1078	74430	177,834	468,112	308,926	241,852	1,272,281	98%
Component 3	225,000	48,694	233,937	179,644	-233,732	0	0	282,542	102%
Project Management	118,182	0	38,321	61,198	6898	23,442	0	129,860	110%
Total GEF	1,761,682	83,099	432,218	464,682	201,660	319,762	241,851	1,743,274	99%

Table 8: Co-financing

Source of co-financing	Type of co-financing	Amount confirmed at CEO endorsement (US\$)	The actual contribution	Actual % of expected amount
UNDP		200,000	200,000	100%
Government of Sierra Leone	In-kind	500,000	-	Limited ⁷
Other partners	Grants	5,889, 414	-	
Other partners	In-kind	2,232,174	336,317	15%
Total		8,821,588	536,317	6%

⁷ In-kind figures not available with the project team

3.2.5 Monitoring and Evaluation: Design at Entry and Implementation (*)

Design at Entry:

The project document provides a detailed description of M&E activities, responsibilities, timeframe, and budget. A total USD\$ 71,500 (Seventy-One Thousand Five Hundred) was budgeted for M&E activities. The costs for conducting surveys to verify project progress on outputs and implementation was not budgeted in this. It was proposed to include such costs as a part of AWP.

The Project document clearly lays out the monitoring and evaluation framework whereby a number of tools are provided for as per GEF guidelines which includes (Inception report, Quarterly Reports, PIR, APR, M&E, and periodic site visits). At the design stage, the MTR and Final Terminal evaluations were provided for in addition to internal monitoring mechanisms, whereby joint monitoring was undertaken by the PMU and PSC mostly quarterly. In addition, the UNDP country office was also supposed to conduct supervisory monitoring to verify the reported progress in the reports.

As the project design has a standard M&E framework with all required elements, the Monitoring & Evaluation design at entry is rated Satisfactory.

M&E Implementation:

The project has tried to follow most of the M&E activities as planned in the project document including inception report, Quarterly Reports, PIR, APR, and M&E. Project progress was also discussed during the PSC meetings. Annual monitoring activities were identified as per the AWP along with budget allocation for monitoring missions.

Despite following M&E framework as planned in the project document, progress monitoring has been weak during the initial 3 years of implementation. The M&E reports were not able to capture the cause of delays of planned activities, how delay in one activity will lead to delays in various inter-linked activities and outputs. Document review, stakeholder consultation, and findings from MTR identifies following reasons for weak M&E:

- Overambitious project design with more than 44 activities and 24 indicators. A limited timeframe and budget to implement such a complex project with limited technical skills available with the project management team;
- As highlighted in an earlier section, there exist shortcomings in the project logframe related to a lack of clear linkage between outcomes, outputs, and planned activities with the indicators selected for progress tracking. There were no annual or mid-term targets set in the logframe.
- Another weak point of M&E has been a lack of reliable MRV system to report progress on key indicators. Though M&E reports include progress towards indicators, however it is not clear how such data was collected or verified. Some of the PIRs also include comments from UNDP CO and UNDP-GEF technical advisor that if the progress shown in the result framework can be attributed to the project;
- Some of the planned M&E did not take place. For example, PSC meetings did not take place regularly on time, MOE senior management participation was limited in these meetings. MTR also points to lack of field visits conducted for M&E during the first three years of implementation as a major gap.
- Document review during TE shows that PIRs across the year have showcased inconsistent performance. As an example, number of cookstoves as supported by the project show a higher number during initial years and lower number during subsequent years. MTR also points to such inconsistencies including performance related to National Energy Policy 2009. The PIR of 2016 and 2017 mentioned that the updated National Energy Policy is approved and enacted

which as per the MTR is not the case. Though the policy is developed and validated, it is not enacted as yet.

M&E implementation has not been very strong, it lacked early identification of issues, risks as well objective assessment of progress. Based on the above, the implementation of M&E is rated moderately **unsatisfactory**.

3.2.6 UNDP and Implementing Partners Implementation / Execution (*), Coordination and Operational Issues

Project was implemented following Direct Implementation Modality (DIM) to ensure broad stakeholder participation and to create both a high flexibility and an enabling environment for innovation. Project was executed under the execution of UNDP CO in close coordination with the Ministry of Energy. Project Management Unit was formed to coordinate and manage project activities but could not assure achieving targeted results on time. PMU had one National Project Director and Project Manager and it involved staffs of the Ministry of Energy, Ministry of Agriculture and Forestry and also private energy institutions in project activities implementation. Permanent Secretary from the Ministry of Energy (Chair of Project Board), Program Specialist (Environment cluster) and Director of Forestry, Ministry of Agriculture and Forestry shared their time to the project.

The PSC was envisaged to be responsible for making management decisions on a consensus basis for the project when guidance is required by the Project Manager, including approval of project revisions. PSC was envisaged to perform project assurance reviews; project monitoring and evaluation by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning and also approve any essential deviations from the original plans.

UNDP CO was responsible for implementing activities, monitoring and ensuring proper use of GEF funds to assigned activities, timely reporting of implementation progress as well as undertaking of mandatory and non-mandatory evaluations. All services for the procurement of goods and services, and the recruitment of personnel were conducted in accordance with UNDP procedures, rules and regulations. MTR points to some weakness observed in procurement of the charcoal and stove testing lab equipment i.e. installation provision was not included in the procurement and due to this project had to bear additional cost for installing equipment.

The project faced major challenges since the start including delays due to Ebola outbreak, over-optimistic project design, backing out of key partners, and technical issues related to launch of revised financing schemes (grants in place of loans). Though many of these issues were unforeseen as well as severely detrimental to the project, the project management was also not very strong for the first 3 years of the implementation phase.

Document review, stakeholder consultations and MTR points to lack of strategic ownership by MOE as one of the challenges faced by the project. Despite repeated approach by UNDP Country Office to MOE to encourage active engagement and support, there was not much success achieved. As a result, PSC meetings were not held on time, workplan approvals were delayed, no effective progress reviews took place, and the required technical support from the Ministry was not made available.

Lack of required technical skills available within the project team has been mentioned in various progress reports including MTR. Based on the MTR recommendation, a CTA was hired for the project in the year 2019 and project management was strengthened with a new team. The new team has tried to ramp up various activities including setting up of CCDC, reaching out to new potential partners for co-financing and launch of financing schemes, roping in other partners, and scaling capacity building activities during 2019. However, due to severe delays during the first three years and non-extension of time period, the project was closed with many gaps in performance.

By taking into account all of the above, the rating for project's implementation & execution is considered as moderately unsatisfactory (MU).

3.3 Project Results

According to the UNDP/GEF evaluation guidelines, the achievements of expected results were evaluated in terms of attainment of the overall objective as well as identified outcomes and outputs. For this, the performance by components is analyzed by looking at (i) general progress towards the established baseline level of the indicators; (ii) actual values of indicators by the end of the EEPUC Project vs. designed ones; (iii) evidence of relevance, effectiveness, and efficiency of the results as well as how this evidence was documented. For the purpose of assessment, TE report uses the Final Project Review Report 2020 as the main information source.

3.3.1 Overall Results (attainment of objectives *)

Key achievements:

- Promotion of Renewable Energy (RE) and Energy Efficiency (EE) policies;
- Updating of National Energy Policy and Bioenergy Policy, validation of National Clean Cooking Plan (completed in 2020);
- Established Cookstove and Charcoal Development Centre (CCDC) for testing and certification;
- 11,643 efficient cookstoves produced and supplied by WestWind Energy co-financing;
- Trained cookstove entrepreneurs in Charcoal production, efficient use of cookstove, and cookstove maintenance;
- Developed gender sensitive capacity development and modules for the production and utilization of certified charcoal and ICS;
- Established a total of 40 hectares of woodlot in Makolerr, Mawoma, Robana and Moyamba Junction communities.

The assessment of progress is based on data provided in the annual reports, technical reports reviewed, the findings and observations of the TE study, and interviews with the project stakeholders. The summary of an evaluation of attainment of objective and components of the Project are presented in Table 9.

Color Coding
Green: completed, indicator shows successful achievement
Yellow: partial completed
Red: indicator shows poor achievement

Table 9: Matrix for rating the achievements of outcomes

Objective/outcome	Performance indicator	Baseline Level	End-of-project Target	End of project status	MTR assessment	MTR Rating	TE assessment	TE rating
Project Objective: Removal of barriers to sustainable production and utilization of biomass resources in Sierra Leone and application of biomass energy technologies to support local economic, environmental and social development that leads to GHG mitigation.	Indicator 1: Reduction of fuel wood consumption for energy use in households and industries by EOP, tonnes	0	Up to 174,167	Limited	Establishment of Kiln and production of cook stoves has not been initiated yet.	U	Project has made progress towards outputs during the latter phase of the project. However, delay in formalizing financing scheme and non-extension of the project led to limited achievement across all indicators.	U
	Indicator 2: No. of enterprises supplying clean and efficient charcoal by EOP.	0	At least 1,000 efficient kilns	Limited	Not initiated yet.	U		U
	Indicator 3: No. of households and industries that adopted, and are benefiting from, the energy-efficient furnaces/stoves by EOP.	0	Up to 15,000	Limited	Not initiated yet	U		U
Outcome 1: Strengthened institutional capacity on biomass resource utilization at the national, regional and community level. Operational effective	Indicator 4: No. of sustainable charcoal and improved cookstoves production businesses that were proposed and developed as influenced by the strengthened policy and institutional frameworks for the deployment of stoves and	0	46 improved cookstove and 100 charcoal	49 improved cookstove and 45 charcoal producers	The project has trained some entrepreneurs but production by them and further training to village level producer	U		MS

policy, legal, and regulatory frameworks and review mechanisms on biomass energy technology applications	kilns and biomass energy businesses by Year 2		produce rs		has not started yet.			
	Indicator 5: No. of biomass energy utilization projects that are planned and developed for PURE/SURE purposes by EOP	0	15,0000 ICS and 1,000 end users	14,072			The PIR 2020 mentions 14,072 ICS under the project. This only considers stoves sold by WestWind Energy which was anyways selling ICS prior to the project start. However, it should be noted that this figure does not consider baseline scenario wherein stoves were already sold, and only incremental outputs should have been considered.	MS
	Indicator 6: No. of policies and legal frameworks that are supportive of BET applications and biomass energy business development approved and enforced by Year 3.	0	1	2		U	National Energy Policy and Bioenergy Policy developed. Pending for enactment	MS
	Indicator 7: Volume of funding made available for BET application projects by EOP, US\$	0	US\$ 200,000	Limited		U	Financing mechanism failed to be launched	U

	Indicator 8: No. of relevant government agencies and institutions involved in biomass energy production and are linked with each other via a working mechanism for coordination by EOP.	0	5	5 – MOE, GTI, EPA, MAF & EPA		U	The project established working relationship with various government agencies.	S
Outcome 2: Increased number of investments on improved, more efficient charcoal and ICS production in Sierra Leone	Indicator 9: No. of improved cook stoves produced (ICS) by Year 4	0	15,000	Limited	14,072	HU	Due to lack of financing scheme, most of these outputs were not achieved.	MS
	Indicator 10: No. of ICS bought and utilized by consumers annually starting Year 4	0	15,000	Limited	14,072			MS
	Indicator 11: No. of installed efficient charcoal kilns that are operational by EOP.	0	1,000	Limited	Installation of kiln has not initiated yet.	HU	Towards the project end, financing scheme was developed and a procurement process was initiated to identify manufactures to supply ICS. Due to new e-tendering system for procurement many bidders were unable to participate and procurement did	U
	Indicator 12: No. of institutional furnaces/stoves installed & being used on a daily basis by households in targeted areas by EOP	0	700	Limited	Not initiated yet. Difficult to meet the target in remaining period	HU		U
	Indicator 13: No. of industrial stoves installed and are operational by EOP.	0	300	Limited	Not initiated yet. Difficult to meet the target in remaining period	HU		U
	Indicator 14: Total volume of investments on biomass energy technology applications by EOP, US\$ million	0	USD 500,000	Limited	Financing has not initiated yet.	U		U

							not happen by project closure date.	
Outcome 3.1: The production and utilization of certified charcoal and certified improved cook stoves are common practices in Sierra Leone	Indicator 15: No. of new proposed and planned project developments that replicates successfully operating stoves and kilns application projects by Year 4	0	3	Limited	No initiation taken place yet	U	Due to lack of financing scheme, most of these outputs were not achieved. Procurement through e-tendering route failed to take off.	U
	Indicator 16: No. of stoves and kilns replication projects that are approved and for implementation by Year 4	0	3	Limited	Not yet. Difficult to meet this target within project life.	HU		U
	Indicator 17: No. of completed stoves and kilns replication projects by EOP	0	3	Limited	Kiln and stove production in target rural areas not initiated yet so difficult to replicate by EOP	HU		U
Outcome 3.2: Enhanced capacity of stakeholder in the value chain (producers, farmers, villagers, women, consumers, collectors)	Indicator 18: No. of local manufacturing firms that can fabricate and install equipment/components used in stoves and kilns systems by Year 4	0	146	Limited	At the village level, manufacturing has not initiated yet so by year 4 (remaining one year) difficult to achieve target	HU		U
	Indicator 19: No. of trained and qualified men and women	0	3,000 champions	1000	Only few that are trained in the initial training are	U		MU

	technicians working on stoves and kilns application projects by EOP				working for Westwind Energy. Training in village level has not initiated yet.			
	Indicator 20: No. of local development plans that integrate biomass energy use, stoves and kiln applications, and biomass industry development prepared by local government men and women planners by EOP	0	5	1	0	U		U
	Indicator 21: No. of local men and women financial officers that are capable of evaluating biomass energy and other RE project proposals by EOP	0	15	6 (from Ecobank and BRAC)		U		MU
	Indicator 22: No. of local entrepreneurs and SMEs that are gainfully involved in businesses that make up the value chain of the bioenergy application industry by EOP	0	25	25		U	TE rating is based on data provided in the final project review report. However, data source is not explicit in the report so it is not possible to know how strong the attribution to	S

								EEPUC project for the achievement of this indicator was.	
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Source of information: end of project status is obtained from final project report prepared by CTA

There was no indicator developed and tracked for a major activity which was introduced during the inception phase- development of community woodlots. TE has evaluated the performance of this activity based on the available information and site visits and considers the performance to be satisfactory.

3.3.2 Relevance

The key criteria for assessing the project relevance have been defined in the UNDP guidance for terminal evaluations as follows: • the extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time; • the extent to which the project is in line with the GEF Operational Programs or the strategic priorities under which the project was funded. Further it is noted that, retrospectively, the question of relevance often becomes a question as to whether the objectives of an intervention or its design are still appropriate given changed circumstances.

During the TE phase, all evidence (document review and stakeholder interviews) showed that the project is very relevant to the government and addressed relevant topic of GHG mitigation through the use of energy efficient cookstoves and charcoal production. The objective of the project is to bring economic, social and environmental benefits through the production of certified charcoal from sustainably sourced feedstock and through the promotion of improved cookstoves to reduce fuel wood demand, improve health and reduce greenhouse gas emissions. The project is well aligned with: i) the Agenda for Prosperity (2013-2017) to promote a low carbon, climate resilient, high growth, gender sensitive, inclusive and sustainable development path; and ii) the National Forestry Policy (2010) to promote the rehabilitation and conservation of forests, soil and water resources, and other relevant national policy and legal frameworks. The project has also been highly relevant to UNDP activities in Sierra Leone.

Data provided in the final project review report (2020) show that in terms of energy sources used for cooking, it is estimated that 72% of households in Sierra Leone use firewood for cooking followed by 27.7% households that use charcoal⁸. However, the use of firewood has been showing a decreasing trend over the years. Firewood use has decreased from 78.7% in 2011 to 72% in 2018 whereas the use of charcoal increased from 20.2 % to 27.7% during the same period⁹. The use of charcoal as a cooking fuel is also concentrated in urban areas with 66.7% of households in urban areas currently using charcoal having increased from 48.8% in 2011¹⁰. Therefore, the use of charcoal is increasing rapidly in the urban areas of Sierra Leone and this trend is less evident in rural areas. The role of charcoal as a cooking energy source and the ways in which it is produced and used has an important bearing in the energy sector and does have significant implications for the forestry and land-use sector as well. This shows that the project remains relevant even after 5 years following its start.

By taking into account all of the above and as further confirmed by the interviews during the project evaluation mission as well as by the observations of the project mid-term evaluation, the project can be considered as fully relevant (R) addressing some key barriers to exploit the vast, still largely unutilized biomass energy potential in Sierra Leone, while also contributing to the national strategic priorities in the energy and environmental field together with those of the UNDP and the GEF. No such changes have taken place in the project environment and other circumstances during its implementation either that would have diminished this relevance.

Considering the above-mentioned facts, the project is considered Relevant.

3.3.3 Effectiveness and Efficiency

Effectiveness:

⁸ Statistics Sierra Leone, 2019, Sierra Leone Integrated Household Survey (SLIHS) Report 2018

⁹ Statistics Sierra Leone, 2019, Sierra Leone Integrated Household Survey (SLIHS) Report 2018

¹⁰ Statistics Sierra Leone, 2019, Sierra Leone Integrated Household Survey (SLIHS) Report 2018

The Project has not been able to achieve its overall objective of 'Energy Efficient Production and Utilization of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone'. It had supported development of enabling policy framework, setting up of testing and certification lab, and developed woodlots to manage supply side issues. However, many of the critical elements of the project plan did not achieve the desired results, though progress was made in terms of channelling financing to efficient charcoal production and cookstove manufacturing, development of standards, capacity building, and raising co-financing etc.

Project suffered due to some external factors (delayed start due to Ebola outbreak, backing out of a main partner proposed for financing) as well as internal factors (poor adaptive management during period, lack of technical skills available within the project team, limited ownership from MOE, delays in getting clarity on UNDP fiduciary compliance for financing schemes, and non-extension of the project closure date). A poor project design with plethora of activities for limited budget and time period also exacerbated the situation.

Nonetheless, the project has made changes in energy policies and practices and also supported in increased level of awareness among the stakeholders, which will have long term positive impact in energy sector of the country and will also impact in Climate Change of global concern. There was also progress made on other important elements of the project design including design of financing scheme, capacity building, development of community woodlots, establishment of CCDC. However, based on the objective assessment of performance against project objectives and outcomes, project was not able to deliver results as outlined in the result framework. Had there been a project extension, it is likely that project would have been able to meet many of the performance targets.

Considering the above-mentioned facts, Effectiveness was rated moderately unsatisfactory (MU).

Efficiency:

Overall, the Project appears to be not efficient since it has not been able to accomplish many of the desired outputs in the results framework while more than 99% of the GEF budget was utilised. Majority of the stakeholders interviewed during TE study mentioned that the project took long time to start critical activities.

- Many of the activities performed during the project did not achieve results as evident in performance against selected indicators in the logframe;
- Despite non roll-out of financing scheme, the project still spent more than 99% of the budgeted amount. Around 27.4% of the GEF budget was used for woodland development activities for which M&E did not have any specific performance indicator;
- The project failed to leverage planned co-financing. Very limited planned co-financing was utilised by the end of the project.

By taking into account the above, it can be concluded that in the light of the achieved overall results up to date and cost efficiencies, the overall efficiency of the project can be rated as moderately unsatisfactory (MU).

3.3.4 Country Ownership

Ministry of Energy took the responsibility of project execution and its involvement in the project was on behalf of Government of Sierra Leone, therefore Government has ownership in this project. There was an

active involvement of the government during the project design phase as well. The PB/PSC had chairmanship with Director MOE and involvement from other relevant ministries and government departments including Sierra Leone Environment Protection Agency (SLEPA), Ministry of Trade & Industry, Forestry and Agriculture departments, Sierra Leone Standards Bureau (SLSB), and Renewable Energy Centres. The compositions of the PB/PSC can be considered as adequate and indicative of country ownership.

As mentioned in PIRs, PSC minutes of meetings, and MTR as well as based on inputs from stakeholders during TE interviews, it may be said that the project did not get desired support from MOE. Many of the PSC meetings were delayed and missed by key people from MOE. There were also delays in approvals in annual work plans (AWPs). A strategic ownership by MOE at a senior level would have been instrumental in fast decision making, detailed performance review, and possibly avoiding some of the shortcomings that the project faced.

The final project review report highlights this issue as ‘The lack of active engagement and leadership by the senior management of MOE resulted in the project activities being coordinated by middle and junior level managers which resulted in lower than expected level of national ownership and limited strategic impact. The project was often able to find temporary solutions to this limited engagement on occasions but the active engagement and leadership from MOE was lacking. The project could have resulted in a higher level of impact had there been a stronger engagement and leadership from MOE at the activity and management level. It is possible that the change in the national administration and the change in energy minister during 2018 which happened after the policies were developed with support from the project may have had a detrimental effect on the approval of the validated policies.’

Document review and stakeholder inputs point to a low level of strategic ownership by the main executing partner and hence low country ownership during the implementation phase.

3.3.5 Mainstreaming

Gender mainstreaming: Whereas there was no deliberate gender strategy guiding the mainstreaming of gender during the project design, during the project implementation, gender concerns were keenly incorporated. The project ensured the integration of gender perspective into relevant outputs, particularly woodlot development, awareness creation for charcoal production and utilisation of cookstoves. A gender analysis and training study was conducted during December 2017.

Project woodlots management groups had high number of women, who were in decision making level as well. Cookstove training also involved good number of women; the training supported them in income generation. As per the final project review report, a micro-finance scheme was established by the EEPUC project with support from GIZ EnDev with Westwind Energy and Ecobank Microfinance. The direct beneficiaries of this scheme would be women who would be dealers/franchisees of Westwind Energy. Ecobank Micro-finance would be offering microfinance at lower interest rates to the women franchisees of Westwind Energy.

Poverty alleviation: the project document shows that majority of the proposed beneficiaries of the project live below the poverty line. The Project was expected to contribute to poverty reduction through savings on women’s time and better health of people by reducing indoor pollution. The development of efficient charcoal production and ICS was supposed to create employment opportunities for people including women.

3.3.6 Sustainability (*)

Sustainability is generally considered to be the likelihood of continued benefits after the project ends. Consequently, the assessment of sustainability considers the risks that are likely to affect the continuation of project outcomes.

Financial: While there is political will for the project at a national level demonstrated in form on validation of National Clean Cooking, the financial allocation for the clean cookstoves and charcoal production are still miniscule compared to needs. This project has tried to remove some barriers in form of policies, establishing CCDC and woodlots, awareness programs, but the work on this sector in Sierra Leone still remains largely project funded. Financial viability gap for the adoption of clean cookstoves or efficient production of charcoal is a major reason for lack of possible sustainability and replication without outside support.

As per stakeholders' inputs, some of the other activities like continued operation of CCDC and management of existing woodlot may also face financial sustainability issues as there aren't any funding or revenue sources available to sustain these on an ongoing basis.

Towards the end of the project phase, there were discussions started with multiple financial institutions to promote innovative financing, however it is early to say how these will be rolled-out or sustained in the near future. The project team has also tried to initiate some partnership engagement during the year 2019 which may support some of these ongoing activities including GIZ support for CCDC and standards development, BRAC and Ecobank for financing scheme, development of community woodlots management committees etc. UNDP Sierra Leone team is currently developing a NAMA proposal under which some of the outputs of this project will be covered. If approved, this project may provide financing for the continued support for those outputs. However, this is currently under proposal stage only.

For the woodlots, Ministry of Agriculture and Forestry has also decided to expand the scope to other regions and committed 19 million USD for woodlot development (as per the information provided by the UNDP project team). Once operationalised, this funding support will definitely help in sustaining and expanding woodlots.

Overall, the outlook for the long-term financial sustainability of the overall project objective of scaling up clean cookstoves and efficient charcoal production cannot be termed as strong. Project has made progress in initiating important dialogues as noted above, however at the project closure stage, no firm financial commitment was available (except for woodlot expansion) for most of the ongoing activities started by the project from government, NGO, bilateral agencies and private sector. Rating: Moderately unlikely

Socio-economic: based on stakeholder inputs, it can conclude that the project has led to increased awareness about the benefits of using charcoal efficiently. Though relevant Government policies are now in place, there will still be a need for continued support for clean cookstoves and efficient charcoal production along with woodlot development in the near future. Rating: Moderately unlikely

Institutional and governance: as per the final project review report, 'As an exit strategy for the project, the CCDC was formally handed over to government and linkages established with SLSB and also GIZ who are active in Sierra Leone in charcoal and cooking energy. Letters of introduction was also made to ECREEE to offer support to CCDC. Steps were also taken to handover the oversight of the community forestry and the management committees to Forestry Division. All these efforts are expected to sustain the impacts of the project beyond the project life.' Project has taken these important steps and if this desired support is extended by relevant agencies, then CCDC and woodlots may continue to provide sustained benefits if the desired support and engagement is available for new partners. Rating: Moderately unlikely

Environmental: Environment sustainability is one of the important elements of the project strategy. As project has not been able to deliver on key output related to use of clean cookstoves and efficient charcoal product, no major GHG emission reduction is expected by the end of project. Rating: Unlikely

3.3.7 Impact

Project Goal: Reduction of GHG emissions in the rural household and industrial sectors of Sierra Leone through integrated and sustainable biomass resource production and utilization, and promotion of sustainable biomass energy technologies in Sierra Leone using market-based approaches.

Indicators:

- Quantity of GHG emissions mitigated annually by End of Project (EOP), tCO₂e.: Up to 159,668
- Total cumulative quantity of GHG emissions mitigated by EOP, tCO₂e.: Up to 433,568

As project was unable to achieve performance indicators hence impact as measured in terms of GHG mitigation is expected to be limited. It is also difficult to measure GHG emission reduction due to lack of test data regarding efficiency of ICS. CCDC lab was commissioned only during March 2020 and since then hasn't been fully operational due to covid-19 restrictions.

3.3.8 Overall Project Outcome(*)

Assessment of outcomes	Rating
Relevance	Relevant
Effectiveness	Moderately Unsatisfactory
Efficiency	Moderately Unsatisfactory
Overall Project Outcome Rating	Moderately Unsatisfactory

4 Main Findings, Conclusions, Recommendations, Lessons Learned

4.1 Main Findings

The project has taken important steps but most of the outputs and outcomes remain work in progress at the project closure stage. Delayed project start due to Ebola outbreak, overly ambitious and complex project design, limited time frame and budget, backing out of key partners during initial stages, delays in finalizing financing scheme due to UNDP fiduciary requirements, and poor adaptive management during the initial phase are some of the key reasons behind moderately unsatisfactory performance of the project. The project started making significant progress towards the latter phase, but due to non-extension of the project duration, many of the performance indicators were not achieved.

However, challenges related to efficient charcoal production and cookstoves still exist in the country and thus the project objective remain relevant.

Best Practice: Community participation and involvement in the woodland project been successful. The lessons learned working with communities need to be adopted into other similar projects. Capacity development at the institutional, legislative, and individual levels are critical for achieving the project outcomes and to ensure its sustainability. This project shows a best practice in the involvement of national government, in this case Ministry of Agriculture, Forestry and Food Security to ensure the successful implementation of a project.

Poor Practices: One of the single most limiting factors that created issues for project implementation and resulted in a lack of achievements, is poor adaptive management. Deployment of appropriate full-time technical resources and stricter & regular review mechanism would have helped in adaptive management for course correction. Inception phase is very critical to ensure successful implementation of the project. The absence of timely and well-developed adaptive management measures during project inception phase had not helped the PMU to avoid project delay and wasted some of the existing opportunities that would have helped to offer solutions to some problems.

4.2 Conclusions

Relevance

- The project's objectives are fully aligned with the GEF and UNDP strategic priorities. By focusing on efficient use of bioenergy, the project aimed to reduce GHG emission and contribute towards global climate change mitigation goals.

Effectiveness & Efficiency

- As some of the outcomes are still work in progress while others failed to take off, the project has been moderately unsatisfactory in achieving its primary objectives.

Majority of initial budget was planned for providing financing support, however as this output failed to take-off, budget was used in other outputs/activities including for woodlots development, hiring of Chief Technical Advisor (CTA). The project was able to make progress in developing the financing scheme but due to non-extension, it was not implemented thus limited achievement of key performance indicators.

Partnership and Cooperation

- The project has developed successful partnerships with several stakeholders including government agencies, industry partners, NGOs, and other initiatives. However, the project failed to get desired strategic and technical support from MOE the key executing agency.

Poverty and Gender

- The initiative has considered gender specific activities and outputs. However, gender disaggregated information for performance indicators is not available in M&E reports.

Sustainability

- Most of the outcomes are still work in progress and may need continued financial and technical support to ensure long term sustainability.

Impact

- GHG emission reduction attributed to the project has not been computed due to delays in operationalization of CCDC Laboratory at Government Technical Institute due to Covid-19 related restrictions. GHG emission reduction potential may be limited currently due to limited progress on certain outputs because of lack of financing scheme launch.
- In future, GHG emission reduction due to sustainable woodlot management could be significant if woodlot area is expanded as per current Government plans. There is also increased awareness among beneficiaries of the environmental benefit the project will have on Sierra Leone's degrading environmental crisis.

4.3 Recommendations

Rec #	TE Recommendations	Entity Responsible	Time frame ¹¹
1	A number of activities remain work in progress and effort is required to ensure there is continued efforts by other partners. These include development of efficiency standards & certification, use of CCDC infrastructure to test cookstoves and promote best practices, and continued maintenance of woodlots developed under the project. A roadmap workshop may be organised with participation from various partners from Government sector, private sector, NGOs, and other donors. This workshop will provide an opportunity to transfer knowledge to other partners and to explore potential engagement opportunities.	UNDP Project team	Year 2020
2	Project has supported development of National Energy Policy and Bioenergy Policy; these policies were validated during the project duration. However, enactment and popularization activities are still pending. UNDP may pursue MOE to enact	UNDP CO	Year 2020

¹¹ Some of the recommendation require workshops or consultations, and due to covid-19 restriction a firm timeline is not included.

	these policies to support clean bioenergy development in the country.		
3	Capacity building and awareness creation activities were performed under the project. Knowledge material developed for these activities must be documented and handed over to relevant partners and agencies including CCDC. These knowledge materials and learning from the project can also be shared with other regional or local programs in Africa.	UNDP project team	Year 2020
4	The project has also established forestry initiatives at the community level with local management committees to create a model for sustainable supply of biomass for charcoal production. The National Forestry Policy has not been updated since the start of the project and there may be an opportunity for the project to influence the forestry policy when updated. MAF can also take up the expansion of woodlots to newer areas using government funding support.	UNDP CO and UNDP project team	Year 2020
5	During 2019, project has developed financing schemes and also engaged potential partners including Ecobank and BRAC. There exists a great potential to operationalize these financing schemes to support improved cook stove (ICS) entrepreneurs, efficient charcoal producers, and users. UNDP could keep engaged with these partners to support by providing knowledge support as well as linking them with other partners active in the sector.	UNDP project team	Year 2020

4.4 Lessons Learned

With broad and ambitious objectives, the financial resources and timeline to implement seem limited. The design document assumes a high probability of additional funds coming from partners and governments. For project design, the evaluation highlights the importance of considering timeframe, budget, and capabilities available at the national level while developing activity plan. While many faults of the initial project design can be compensated by good adaptive management but such design flaws could also delay the project implementation and in the worst case can lead to unnecessary waste of resources.

The Evaluation team suggests that in UNDP-supported, GEF-financed projects, in general, the formulation of progress indicators in the project results framework (logframe) should contain a manageable number of progress indicators.

The suggested “follow-up project” may consist of the following elements:

- Follow-up project can focus on supply side of sustainable charcoal production by pursuing further expansion of woodlots with a focus on developing revenue generation means to make management of woodlots sustainable;
- There is a good potential for a follow-up project to support public awareness program on benefits of using ICS. This may include a cost-benefit analysis for using ICS compared to traditional cookstoves;
- CCDC may need further handholding and support for an extended period of another 24 months to establish itself as a test laboratory for cookstoves. Provision of this support is important to institutionalise CCDC and for it to play a key role in improving efficiency in the charcoal value chain;
- During 2019, the project has made significant efforts in developing partnerships to launch financing mechanism as well as in developing appropriate financial instruments. While the focus need not be on directly providing financing, there would be a follow-up support for operationalising these financing instruments using local and regional partners by providing knowledge and management support.

UNITED NATIONS DEVELOPMENT PROGRAMME

Terms of Reference



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I. Position Information

Post Title:	Terminal Evaluation of a “Energy Efficient Production and Utilisation of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone”, PIMS ID: 4904
Location:	Freetown, Sierra Leone
Type of Contract:	Individual (International and National) Consultants
Post Level:	N/A
Duration of Contract:	20 working days

II. Background

UNDP supports countries in addressing development, climate change, and ecosystem sustainability in an integrated manner. As a Global Environment Facility (GEF) Implementing Agency, UNDP offers countries highly specialized technical services for programme/project formulation, due diligence, mobilization of required co-financing, implementation oversight, results management and evaluation, performance-based payments and knowledge management.

In 2014, UNDP-GEF designed a project in Sierra Leone integrate a top-down approach of providing support through policy measures and demand side management through standards, Testing and Certification, in combination with a bottom-up approach of providing financial incentives, carbon finance and market mechanisms to secure supply and create demand for energy efficient charcoal stoves and efficient charcoal kilns. To enhance the effectiveness of these approaches and to create an enabling environment among the stakeholders and value chain actors in the EEPUC project, capacity building and training activities were conducted to enhance the technical and business capacity of the key stakeholders active in the value chain and at the different stages of the project execution. The Energy Efficient Production and Utilisation of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone project was launched in 2015 and is implemented in collaboration with the Ministry of Energy (MOE), Ministry of Agriculture and Forests (MAF), Government Technical Institute (GTI), Westwind Energy, Sierra Leone Environment Protection Agency (SL-EAP) and GIZ in close collaboration with other key stakeholders.

The essentials of the project to be evaluated are as follows:

PROJECT SUMMARY TABLE

Project Title:	Energy Efficient Production and Utilisation of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone			
GEF Project ID:	4840		<u>at endorsement (US\$)</u>	<u>at completion (US\$)</u>

UNDP Project ID:	00090575 PIMS 4904	GEF financing:	1,768,182	
Country:	Sierra Leone	UNDP:	200,000	
Region:	Africa	Government:	500,000	
Focal Area:	Climate Change	Others	8,121,585	
FA Objectives, (OP/SP):		Total co-financing:	8,821,585	
Executing Agency:	Ministry of Energy	Total Project Cost:	10,589,767	
Other Partners involved:	Ministry of Agriculture and Forests, Government Technical Institute, Westwind Energy, Environment Protection Agency, GIZ Endev	ProDoc Signature (date project began):		April 24, 2015
		(Operational) Closing Date:	Proposed: December 31 2019	Actual: December 31 2019

The overall goal of this project is Energy Efficient Production and Utilization of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone (EEPUC). The objective of the project is the reduction of GHG emissions in the domestic and industrial sectors of Sierra Leone to bring economic, social and environmental benefits through the production of certified charcoal from sustainably sourced feedstock and through the promotion of efficient charcoal stoves and efficient charcoal kilns to reduce charcoal demand, improve health and reduce greenhouse gas emissions. The EEPUC project was designed to have the three components with associated activities and outputs that will lead to the following outcomes.

EEPUC Project Components	Envisaged Outcomes of EEPUC Project
Component 1: Policy and regulatory frameworks on the use of more efficiently produced charcoal and improved cook stoves	Outcome 1: Strengthened institutional capacity on biomass resource utilization at the national, regional and community level. Operational effective policy, legal, and regulatory frameworks and review mechanisms on biomass energy technology applications
Component 2: Development of public-private initiatives for the improved and more efficient production of charcoal and the scaling up of improved cookstove production	Outcome 2: Increased number of investments on improved, more efficient charcoal and ICS production in Sierra Leone

Component 3: Improved, more efficient production and efficient utilization of certified charcoal and cookstove

Outcome 3: The production and utilization of certified charcoal and certified improved cook stoves are common practices in Sierra Leone. Enhanced capacity of stakeholder in the value chain (producers, farmers, villagers, women, consumers, collectors)

The EEPUC project was designed to implement 43 activities and associated outputs to achieve the above outcomes. These 43 activities were grouped under 12 outputs with associated indicators and targets the details of which are available in the final Project Document dated February 2015 and the project logical framework available at Annex A.

Implementation of the EEPUC Project is in its final months of implementation (February – March 2020). In accordance with UNDP and GEF Monitoring and Evaluation Procedures, all full and medium-sized UNDP support and GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference set out the expectations for the terminal evaluation of a “Energy Efficient Production and Utilisation of Charcoal through Innovative Technologies and Private Sector Involvement in Sierra Leone” Project, PIMS ID: 4904.

The UNDP therefore requests applications from suitably qualified international and national (Sierra Leonean) candidates to e to conduct the terminal evaluation, in line with the provisions of the terms of references (ToRs), as follows:

III. Objectives and Scope of Evaluation

The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid UNDP in the overall enhancement of UNDP programming.

The terminal evaluation (TE) will cover implementation of the entire project, since inception in April 2015 to March 2020 and will involve a field mission to Sierra Leone to geographic locations indicated in the next section on evaluation approach and method. The terminal evaluation (TE) will be conducted according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects.

IV. Evaluation Approach and Method

An overall approach and method for conducting project terminal evaluations of UNDP supported GEF financed projects have developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact**, as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A set of questions covering each of these criteria have been drafted and are included with this TOR (*fill in [Annex C](#)*). The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.

The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is expected to conduct a field mission to Freetown, including the following project sites:

- Cookstove and Charcoal Development Center (CCDC), Government Technical Institute (GTI), Kissy Docks; Freetown;
- Community managed woodlot at Moyamba Junction and Kasewe Forest reserve tree nursery site;
- Efficient cookstoves and efficient kilns installed by Westwind Energy and the production facility in Freetown.

Interviews will be held with the following organizations and individuals at a minimum:

- Ministry of Energy,
- GTI,
- Ministry of Agriculture and Forests,
- Westwind Energy,
- Environment Protection Agency,
- GIZ EnDev,
- Sierra Leone Standards Bureau
- CREEC
- Charcoal producers trained by EEPUC project;
- Cookstove producers trained by EEPUC project;
- Management committee members for woodlots established by EEPUC project.

The evaluator(s) will review all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, mid-term review, progress reports, consultancy reports, GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. The primary and secondary and quantitative and qualitative data for the evaluation are to be collected and scientifically triangulated by the evaluator. The evaluator(s) will also ensure data to be disaggregated by sex, ethnicity, disability, geography as applicable. A list of documents that the project team will provide to the evaluator(s) for review is included in [Annex B](#) of this Terms of Reference.

V. Evaluation Ethics, Criteria and Ratings

Evaluation consultants will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance with the principles outlined in the [UNEG 'Ethical Guidelines for Evaluations'](#)

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (See Annex A), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact**. Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in [Annex D](#).

Evaluation Ratings:			
1. Monitoring and Evaluation	rating	2. IA& EA Execution	rating
M&E design at entry		Quality of UNDP Implementation	
M&E Plan Implementation		Quality of Execution - Executing Agency	
Overall quality of M&E		Overall quality of Implementation / Execution	
3. Assessment of Outcomes	rating	4. Sustainability	rating
Relevance		Financial resources:	
Effectiveness		Socio-political:	
Efficiency		Institutional framework and governance:	
Overall Project Outcome Rating		Environmental:	
		Overall likelihood of sustainability:	

VI. Project Finance / Co-Finance

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

Co-financing (type/source)	UNDP own financing (mill. US\$)		Government (mill. US\$)		Partner Agency (mill. US\$)		Total (mill. US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Actual	Actual
Grants	200,000	165,219			5,889,314	0	6,089,314	165,219
Loans/Concessions								
• In-kind support			500,000	13,600	2,232,174	5000	2,732,174	18,600
• Other								
Totals	200,000	165,219	500,000	13,600	8,121,488	5000	8,821,488	183,819

VII. Mainstreaming

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

VIII. Impact

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.¹²

IX. Conclusions, Recommendations and Lessons

The evaluation report must include a chapter providing a set of **conclusions, recommendations and lessons**. Conclusions should build on findings and be based in evidence. Recommendations should be prioritized, specific, relevant, and targeted, with suggested implementers of the recommendations. Lessons should have wider applicability to other initiatives across the region, the area of intervention, and for the future.

X. Implementation Arrangements

The principal responsibility for managing this evaluation will be Team Leader/Acting Team Leader, Environment, Energy and Natural Resource Management Cluster, in the UNDP CO in Sierra Leone. The UNDP CO will contract the evaluators and ensure the timely provision of logistics, including part payments, in line with contractual deliverables, travel arrangements, etc., within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

¹² A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method developed by the GEF Evaluation Office: [ROtI Handbook 2009](#)

XI. Evaluation Timeframe

The total duration of the evaluation will be twenty (20) working day, from date of contract signing, according to the following plan:

Activity	Timing	Completion Date
Work Plan Preparation	2 days	3rd April 2020
Evaluation Mission	10 days	17th April 2020
Draft Evaluation Report	6 days	27th April 2020
Final Report	2 days	29th April 2020

*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report.

XII. Evaluation Deliverables

The evaluation team is expected to deliver the following:

Deliverable	Content	Timing	Responsibilities
Inception Report	Evaluator provides clarifications on timing and method	No later than 2 weeks before the evaluation mission. (3 rd April 2020)	Evaluator submits to UNDP CO
Presentation	Initial Findings	End of evaluation mission (17 th April 2020)	To project management, UNDP CO
Draft Final Report	Full report, (per annexed template) with annexes	Within 2 weeks of the evaluation mission (27 th April 2020)	Sent to CO, reviewed by RTA, PCU, GEF OFPs
Final Report*	Revised report	Within 1 week of receiving UNDP comments on draft (29 April 2020)	Sent to CO for uploading to UNDP ERC.

*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report.

XIII. Team Composition

The evaluation team will be composed of 1 International and 1 national (Sierra Leone National) evaluators/consultants. The consultants shall have prior experience in evaluating similar projects. Experience with GEF financed projects is an advantage. The International Evaluator will be the team leader and be responsible for finalizing the report. The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The Team members must present the following qualifications:

- Master's degree or above in environmental sciences, energy, international development, with specific academic or professional background related to climate change mitigation, monitoring and evaluation or other closely relevant fields (20 points)
- Minimum 7 years of relevant professional experience on environment and climate change mitigation (20 points)
- Knowledge of UNDP and GEF evaluations (15 points)
- Previous experience with results-based monitoring and evaluation methodologies (15 points)
- Technical knowledge in the targeted focal area(s) Climate Change/renewable energy and cooking energy (10 points)
- Experience working in Africa (10 points).

- Fluency in English, both oral and written, is required (10 points).

XIV. Application Procedures

Applicants are requested to apply online (indicate the site, such as <http://jobs.undp.org>, etc.) by (to be inserted at point of advert). Individual consultants are invited to submit applications together with their CV for these positions. The application should contain a current and complete C.V. in English, with indication of the e-mail and phone contact. Shortlisted candidates will be requested to submit technical and financial proposals, indicating the methodology and sample evaluation questions they will use to deliver on the assignment and at what total cost of the assignment (including daily fee, per diem and travel costs).

UNDP applies a fair and transparent selection process that will take into account the competencies/skills of the applicants as well as their financial proposals. Qualified women and members of social minorities are encouraged to apply.

XV. Payment Modalities and Specifications

Payment to the consultants will be made in 3 instalments upon satisfactory submission of the following deliverables:

- 1st instalment: 10% upon submission of inception report.
- 2nd Instalment: 40% upon submission and approval of draft terminal evaluation report.
- 3rd Instalment: 50% upon submission and approval (UNDP-CO and UNDP RTA) of the final terminal evaluation report.

XVI. Evaluation Criteria

Criteria for Selection of the Best Offer

Combined Scoring method — where the qualifications and methodology will be weighted a maximum of 70% and combined with the price offer which will be weighted a maximum of 30%.

Education: 10%

- Advanced University degree in social sciences

Experience: 15%

- Must have undertaken research in Sierra Leone and or the region relating to local governance, institutional strengthening and policy development in the last ten years
- Must be familiar with state and non-state actors working in the above fields
- Demonstrated understanding of policies and laws relating to local governance in Sierra Leone or the region
- The Consultant must have in-depth understanding of the political structure and local governance in Sierra Leone
- Experience in supporting policy development is an added asset

Clear understanding of the assignment: 10%

- Clear understanding of the assignment as demonstrated in the proposal, overall proposed methodology (comprehensiveness and completeness) time frame, feedback/validation workshop.

Analytical capabilities 10%

- Strategic vision, strong technical and analytical capabilities and demonstrated ability to collect, analyze and interpret data.
- Quantitative and qualitative data management skills
- Competence in the use of collective intelligence will be an advantage

Interpersonal and communication skills: 5%

- Strong interpersonal skills and communication skills,
- Proven ability to work in a team, develop synergies and establish effective working relations within MDAs, with persons of different UN Agencies, government counterparts, donors and NGOs
- Strong written communication skills to produce external communication materials.
- Demonstrated ability to train and build capacity of others

Integrity 5%

- Demonstrates integrity by modelling the UN's values and ethical standards

Managing complexity 10%

- Demonstrates openness to change and ability to receive/integrate feedback;
- Negotiating skills, and the ability to cope with situations which may pose conflict,
- Ability to solve complex problems with minimal supervision
- Ability to work with small multi-disciplinary, multi-national teams to deliver quality products in high stress, short deadline situations.

Results-orientation 5%

- Demonstrated understanding of results-based management.
- Ability to prioritize.
- Use of results language for communication
- Writing and communication will be in English and must have excellent communication skills in English. The consultant must bring his/her own computing equipment.

Annex 2: List of persons interviewed

SN	Name	Position/Title	Institution	Mode of contact : Skype/zoom /face-2-face	Date
1	Mustapha Sannoh	Head of Rural Energy	Ministry of Energy	Zoom	13-07-2020
2	Mohamed Kamara	Head of Department, Renewable Energy Centre(REC)	Government Technical Institute	Zoom and Face-2-face	14-07-2020
3	Binu Parthan	Chief Technical Advisor, EEPUC	Individual consultant	Telephone	13-07-2020
4	Sahr J Kellie	Acting Deputy Director, Forestry	Ministry of Agriculture and Forestry	Face-2-face	14-07-2020
5	Joe Kandeh Tangay	Forest Officer			18-07-2020
6	Professor Thomas B R Yormah	Executive Director	Sierra Leone Standards Bureau	Zoom	16-07-2020
7	Abdul Aziz Kamara	Manager, Standards Department			
8	Abdul Fullah	Engineer, Metrology Dept			
9	Tanzila Watta Sankoh	Team Leader, Sustainable Growth Cluster	UNDP Sierra Leone Country Office	Skype	16-07-2020
10	Andrew Katta	Project Manager			13-07-2020
11	Roseline Mammah	4.5 Program Associate, Logistics and finance			
12	Tapsir Njai	Executive Director	WestWind Energy	Zoom	13-07-2020
13	Mahmoud Kamara	Proprietor	Mountain Stove	Telephone	21-07-2020
14	Mustapha Kamara	proprietor,	Kay Stove	Telephone	21-07-2020
15	Joseph S Conteh	Proprietor	Joseph SC Stove	Telephone	21-07-2020
16	Foday Conteh	Trainee of Westwind Energy	Individual	Telephone	21-07-2020
17	Foday Sheku Dumbuya	PSC member	GIZ/EnDev	Email	22-07-2020

Annex 3: Summary of field visits

Due to covid-19 related travel restriction, no country visit was made by the international consultant. Online calls and email questionnaire were used for the consultation process. The national consultant had made site visits and interview visits. Itinerary of these visits is included below

Site visits were made by local consultant

SN	Location	Focal Person (s)	Position	Activity/Mode of contact	Date
1	Mawoma, Port Loko District	Abdul Kanu	Secretary	Focus Group discussion and follow-up interview with key individuals	17-07-2020
		Morlai Conteh	PRO		
		Foday Sesay	Vice Chairman		
		Baba Kamara	Chairman		
		Digba Kamara	Treasurer		
		Pa Alie Kamara	Member		
		Mariatu Mansaray	Member		
		Lucy Bangura	Chairlady		
		Chernoh Bah	Member		
		Foday Bangura	Organiser		
		Santigie Bangura	Member		
		Abu Bakar Koroma	Member		
		Kadiatu Kanu	Member		
		Fatmata Kabia	Member		
2	Makoleer, Port Loko District			Focus Group discussion and follow-up interview with key individuals	17-07-2020
		Osman Sesay	Chairman		
		Hawa T Kamara	Chairlady		
		Abu Kanu	Member		
		Aminata Sesay	Member		
		Isata Sesay	member		
		Hawa Kanu	Member		
		Osman Sesay	Member		
		Fatmata Bangura	Member		
		Mamoud Gbla	Member		
		Sorie Sesay	Member		
3	Robana, Port Loko District				
		Abdul K Fullah	Secretary		17-07-2020

		Braima kalokoh	Treasuerr	Focus Group discussion and follow-up interview with key individuals	
		Mohamed Mansaray	Organiser		
		Mohamed Turay	PRO		
		Abdul Kanu	Member		
		Gbessay Conteh	Chairman		
		Osman Koroma	PRO		
		Kadiatu Mansaray	Member		
		Yeabu Kanu	Member		
		Zainab Kabia	Member		
		Iye Kanu	Chairlady		
		Mohamed Kamara	Adviser		
4	Moyamba Junction (one woodlot site is in Tonkolili District under the management of this committee)	Sulaiman Kaipomoh	Secretary	Focus Group discussion and follow-up interview with key individuals	18-07-2020
		Kennie Njalua	Chairman		
		Zainab Turay	Chairlady		
		Abdulai Koroma	Volunteer		
		Ibrahim Kamara	Member		
		Foday Kande	Member		
		Alpha Bangura	Chief		
		Samuel Gbla	Forestry Labour		

Annex 4: List of documents reviewed

- Final Project Document approved in 2015
- Inception report 2016
- Midterm review report, 2018
- Annual workplans (2016, 2017, 2019, 2020)
- PIR (2016, 2017, 2018, 2019, draft 2020)
- Final Project review report (2020)
- M&E plans (2016, 2017, 2018, 2019, 2020)
- Annual progress reports (2016, 2017, 2018, 2019)
- Combined delivery reports for financial details (2016, 2017, 2018, 2019, 2020)
- Quarterly progress reports
- Project steering committee meeting reports
- Yearly procurement plans
- Back to office reports (BTOR) for important missions
- Market survey of improved cookstoves 2017
- Consulting report on gender analysis and training, 2017
- Development of Public-Private Initiatives for the Improved and More Efficient Production of Charcoal and the Scaling up of Improved Cookstove Production, 2020
- Narrative reports for capacity building workshops

Annex 5: Evaluation Question Matrix

Evaluation Criteria	Evaluation Questions/Indicators	Sources
Relevance: How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels?	<ul style="list-style-type: none"> • How relevant is the project to target groups', including Governments', needs and priorities? • How relevant is the project to other key stakeholders' (executing agencies, partner organizations, including other UN agencies, NGOs etc.) needs and priorities? • Were the activities and outputs of the project consistent with the overall objectives and goals of the project's overall scope and objectives? • Is the project relevant to the local communities, women and people from vulnerable community? • Does the project remain relevant taking into account the changing environment? 	<ul style="list-style-type: none"> • Desk review of project documentation • Skype interviews with the UNDP project team and Government officials • Responses of key stakeholders to an online survey • Online research on current status/past developments related to target beneficiaries
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?	<ul style="list-style-type: none"> • Has the project's theory of change proven to be effective in pursuing its objectives? Does it hold up in practice? • Has the initiative established clear baselines, targets and milestones toward achieving its objectives and established a clear and effective process for monitoring progress? • Were the planned objectives and outcomes in the project document achieved? (both qualitative and quantitative) • What are the results achieved beyond the logframe? • What were the major factors influencing the achievement or non-achievement of the objectives? • To what extent were the project governance structures effective in facilitating smooth implementation of the project? • How was the management of challenges & risks? 	<ul style="list-style-type: none"> • Desk review of project documentation • Skype interviews with the UNDP project team and Government officials • Responses of key stakeholders to an online survey • Progress reports

	<ul style="list-style-type: none"> • Recommendations of Mid Term Review have been implemented? What are the relevant lessons from the project? • How do the stakeholders perceive the quality of outputs? Were the targeted beneficiary groups actually reached? • Indicator: To what extent is the HDVI producing worthwhile results (outputs, outcomes) and/or meeting each of its objectives? 	
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?	<ul style="list-style-type: none"> • How efficient is the project, i.e. how efficiently were resources (funds, expertise, time, etc.) converted to outcomes and impacts and have these been delivered on time and in accordance with agreed workplans? • Was there coordination with other projects, and did possible synergy effects happen? • Were there delays in project implementation and if so, what were their causes? • Level of discrepancy between planned and utilized financial expenditures • Are there alternative approaches that could have the same outcomes with less efforts/cost? • What lessons can be learnt from these projects on efficiency? • To what extent the project has made the best use of available human, technical, technological, financial and knowledge inputs to achieve desired results? 	<ul style="list-style-type: none"> • Desk review of project documentation • Data analysis of progress reports, financial expenditure reports
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to	<ul style="list-style-type: none"> • Does the project have an appropriate strategy to disseminate its results and findings and promote/support scaling up and replication? • Has the project contributed or is likely to contribute to long-term social, economic, technical, environmental 	<ul style="list-style-type: none"> • Desk review of project documentation • Data analysis • Interviews

sustaining long-term project results?	<p>changes for individuals, communities, and institutions related to the project?</p> <ul style="list-style-type: none"> • What sustainable difference has the project or programme made to beneficiaries? • The extent to which the net benefits of the intervention continue or are likely to continue? • What were the major factors which influenced the achievement or non-achievement of sustainability? • Is the exit strategy effectively implemented? 	
Impact: Are there indicators that the project has contributed to, or enabled progress towards, reduced environmental stress and/or improved ecological status?	<ul style="list-style-type: none"> • What is the initiative's progress toward achieving its objectives and associated impacts, including real difference made to target groups? • What were the major influencing factors towards achievement/non-achievement? • Did the initiative have unintended – either positive or negative – impacts? • Where negative impacts occurred, have mitigation strategies been defined and implemented? • How many people have benefitted from the impacts by aggregated sex and groups? 	<ul style="list-style-type: none"> • Desk review of project documentation • Data analysis • Secondary research on country/city specific programs • Skype interviews with the UNDP team, key partners
	<ul style="list-style-type: none"> • To what extent is the project has considered poverty reduction and gender in its activities? • Financial assessment, utilization against budget, issues related to co-financing? 	<ul style="list-style-type: none"> • Project reports review • Data analysis

Annex 6: Sample questionnaire used and summary of results

Name:

Organisation:

Date:

Role in the project:

Relevance & Design	
<ul style="list-style-type: none">• Is the Project relevant to the objectives of the government of Sierra Leone?• Is the Project relevant to SL's environmental objectives and economic and social situation?• Does the Project address the needs of target beneficiaries?• How is the Project complementary to activities of other stakeholders and donors active in the region or the country?• How would you describe the capacities of stakeholders involved in the project?• How did the Project address the priorities and development challenges of targeted beneficiaries?• Were the resources and others (legislation, project management arrangement) in place for the project?• What changes could have been made (if any) to the design of the Project in order to improve the achievement of the Project's expected results?	
Effectiveness	
<ul style="list-style-type: none">• To what extent have the expected outcomes and objectives of the project been achieved?• Do you think project has been successful in meeting its objectives? If yes, what are the main results and if not, what are the gaps?• How could the Project have been more effective in achieving its results?• How has the risks and risk mitigation of the project being managed• How was the project managed by UNDP?• What are the results achieved beyond the logframe?• What were the major factors influencing the achievement or non-achievement of the objectives?• To what extent were the project governance structures effective in facilitating smooth implementation of the project?• How was the management of challenges & risks?• Recommendations of Mid Term Review have been implemented? What are the relevant lessons from the project?	

<ul style="list-style-type: none"> How do the stakeholders perceive the quality of outputs? Were the targeted beneficiary groups actually reached? 	
Efficiency	
<ul style="list-style-type: none"> Was project support provided in an efficient way in terms of use of financial resources, project management and reporting? Did the project efficiently utilize local capacity in implementation? What was the level of efficiency of cooperation and collaboration arrangements? How could the project have more efficiently carried out implementation (in terms of management structures and procedures, partnerships arrangements etc...)? How efficient is the project, i.e. how efficiently were resources (funds, expertise, time, etc.) converted to outcomes and impacts and have these been delivered on time and in accordance with agreed workplans? Was there coordination with other projects, and did possible synergy effects happen? Were there delays in project implementation and if so, what were their causes? Level of discrepancy between planned and utilized financial expenditures Are there alternative approaches that could have the same outcomes with less efforts/cost? To what extent the project has made the best use of available human, technical, technological, financial and knowledge inputs to achieve desired results? 	
Implementation and Partnerships	
<ul style="list-style-type: none"> How well the project implemented? What were the positives and negatives in the way project was managed? Were progress reports produced accurately, timely and share with key stakeholders? How well financing was managed by the project? What were the key issues faced in using financing by the project? Were the findings, lessons learned and recommendations shared among Project stakeholders for ongoing Project adjustment and improvement? Did the Project mainstream gender/ vulnerable groups considerations into its implementation? Which partnerships/linkages were facilitated? Were objectives, outcomes, and outputs achieved on time? 	
Sustainability & Impact	
<ul style="list-style-type: none"> Do you think impact the project has made will be sustained after the project closure? 	

<ul style="list-style-type: none"> • Is there evidence that Project partners will continue their activities beyond Project support? • The project supported development of policies to promote efficient charcoal production and utilisation, do you think these policies are adequate and effective in making changes? • Are Project activities and results being replicated elsewhere and/or scaled up? • What are the main challenges that may hinder the sustainability of results? • What lessons can be learnt from the project? • Did the initiative have unintended – either positive or negative – impacts? • Where negative impacts occurred, have mitigation strategies been defined and implemented? • How many people have benefitted from the impacts by aggregated sex and groups? 	
Any other inputs or insights which you think will be important for evaluation of this project?	

Summary of results

Component	Summary of results/comments of TE	TE Rating					
		HS	S	MS	MU	U	HU
Outcome 1: Strengthened institutional capacity on biomass resource utilization at the national, regional and community level. Operational effective policy, legal, and regulatory frameworks and review mechanisms on biomass energy technology applications.							
Output 1.1 Adequately trained and capable decision-makers and relevant stakeholders (from EPA-SL, ministries, private sector, rural communities, etc.) leading efforts, communicating and managing more efficiently produced charcoal and improved cook stove utilization in an integrated manner	<p>Project has actively engaged with key government decision makers and relevant stakeholders in developing awareness on efficiently produced charcoal and improved cook stove utilization. However, some of the desired results are still work in progress including enactment and promotion of policies and CCAP.</p> <p>Establishment and operation of Research, Knowledge, Learning and Coordination Center (RKLCC) at DoE was not done. RKLCC as defined in Project Document is a center of excellence established within Department of Energy o consolidate, preserve, coordinate and ensure continuing use of information and knowledge that</p>						

Component	Summary of results/comments of TE	TE Rating					
		HS	S	MS	MU	U	HU
	are obtained and accumulated during the capacity development and other activities in this Project. Its purpose is different from CCDC which is setup as a testing and certification lab.						
Output 1.2. Formulated, approved and enforced policies, laws and regulations on more efficient charcoal and improved cook stoves production	Project has supported development of National Energy Policy and Renewable Energy Policy. These policies have been validated, however as per stakeholder inputs there are yet to be enacted and enforced.						
Output 1.3 Developed standards and certification protocols for efficient charcoal and improved cookstove	CCDC was finally operational only in March 2020. Project had also planned to develop/define a standard of efficiency of kiln and stoves and emission level but this was not done.						
Outcome 2: Increased number of investments on improved, more efficient charcoal and improved cookstove production in Sierra Leone							
Output 2.1: Established partnerships between the public and private stakeholders involved in the value chain of charcoal production and utilization	<p>Limited progress took place due to lack of operational financing scheme component. Towards the end, when financing was structured (grant based) project tried to do procurement which was delayed due to introduction of e-tendering. There was a low participation obtained in the e-tendering process, hence project closed without completion of work.</p> <p>Project was able to structure appropriate financing and also engaged with EcoBank and BRAC to support financing, these structures may be pursued by relevant agencies to ensure that such relevant technical work can be utilized.</p> <p>The design drawings, construction procedures and manuals for the construction and operation of energy-efficient stoves were developed.</p>						
Output 2.2: Developed incentives through carbon finance, microfinance, rebate and loan guarantee schemes to scale up sustainable charcoal and improved cookstove businesses							
Output 2.3: Implemented and operational i) 300 locally produced industrial stoves for income generating local enterprises such as fish smoking, bakery, palm oil processing and tobacco curing and ii) 700 institutional stoves for school, prisons and hospitals.							
Output 2.4: Implemented and operational 1,000 locally produced efficient kilns for the sustainable production of charcoal.							
Output 2.5: Locally produced 14,000 energy-efficient stoves in rural households for cooking needs implemented and promoted for replication							

Component	Summary of results/comments of TE	TE Rating					
		HS	S	MS	MU	U	HU
Output 2.6: Established and operational framework for the phase-out of traditional charcoal kilns and cook stoves							
Outcome 3: The production and utilization of certified charcoal and certified improved cook stoves are common practices in Sierra Leone.							
Output 3.1: Developed gender sensitive capacity development and modules for the production and utilization of certified charcoal and ICS	A study on gender issues and training was conducted by the project. There were also a few workshops conducted which highlighted the gender issues relating to the charcoal value chain and made recommendations on addressing gender issues						
Output 3.2 Developed and implemented promotional schemes on the social, economic and environmental co-benefits of improved charcoal and improved cook stoves to create demand, generate good buy-in and willingness to pay	Due to non-operationalization of financing scheme, there was not much progress on this output.						
Output 3.3 Sensitized key value chain actors through public awareness campaign and capacity development	Some Capacity building and awareness program were conducted in collaboration with GTI and WestWind.						
Overall Project Rating							

Annex 7: Evaluation consultant code of conduct and agreement form

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form¹³

Agreement to abide by the Code of Conduct for Evaluation in the UN System

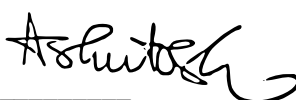
Name of Consultant: Ashutosh Pandey

Name of Consultancy Organization (where relevant): NA

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at Gurugram, India on 02/09/2020

Signature: _____



¹³www.unevaluation.org/unegcodeofconduct

Annex 8: Audit Trial

Annex 9: Terminal GEF Tracking Tool