Terminal Evaluation Report

'Nationally Appropriate Mitigation Action for Integrated Waste Management and Biogas Production in Uganda'

Terminal Evaluation Timeframe	April 2024 to August 2024
Project Implementation Timeframe	September 2018 to August 2023 (extended to March 2024)
GEF Project ID:	9210
UNDP PIMS Project ID:	5574
Country:	Uganda
Region:	Africa
Focal Area:	Climate Change
FA Objectives, (OP/SP):	Scaled-up action on climate change adaptation and mitigation across sectors which is funded and implemented
Executing Agency:	Ministry of Energy and Mineral Development
Other Partners involved:	Ministry of Water and Environment, Ministry of Local Government, Ministry of Lands Housing and Urban Development, Ministry of Finance Planning and Economic Development, NWSC, Electricity Regulatory Authority, Climate Change Unit – Ministry of Water and Environment.

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Disclaimer

The analysis and recommendations of this report do not necessarily reflect the views of the United Nations Development Programme, its Executive Board, or the United Nations Member States. This publication reflects the views of its author.

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LIST OF ACRONYMS

APR	Annual Progress Report
AWP	Annual Work Programme
CC	Climate Change
CCM	Climate Change Mitigation
CDM	Clean Development Mechanism
CDR	Combined Delivery Report
CH_4	Methane
CO	Country Office (UNDP)
COP	Conference of Parties (UNFCCC)
CO_2	Carbon Dioxide
CO_{2eq}	Carbon Dioxide Equivalents
CPAP	Country Programme Action Plan
DSA	Daily Service Allowance
EE	Energy Efficiency
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESIA	Environmental and Social Impact Assessment
FODER	Fund for Renewable Energy Development
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GRM	Grievance Redress Mechanism
GWh	Gigawatt (GW)- hours (1 x 10^6 kWh)
HQ	Headquarter (UNDP)
IWM	Integrated Waste Management
kWh	kilowatt (kW)- hours
LNG	Liquid Natural Gas
LOA	Letter of Agreement
LPAC	Local Project Appraisal Committee
MOU	Memorandum of Understanding
MRV	Measuring, Reporting and Verification
MSW	Municipal Solid Waste
MTR	Mid- term Review
MW	Megawatt (1 x 10^3 kW)
MWh	Megawatt (MW)- hours (1 x 10^3 kWh)
M&E	Monitoring and Evaluation
NAMA	Nationally Appropriate Mitigation Action
NGO	Non- Governmental Organization
NIM	National Implementation Modality
NPD	National Project Director
NPFE	National Portfolio Formulation Exercise
PAC	Project Appraisal Committee
PC	Project Coordinator

PIF	Project Identification Form
PIR	Project Implementation Review
PM	Project Management
PIU	Project Implementation Unit
PND	National Development Plan
PO	Project Officer
PPA	Power Purchase Agreement
PPG	Project Preparation Grant
PPR	Project Progress Report
PRODOC	Project Document
PSC	Project Steering Committee
RE	Renewable Energy
RCU	Regional Coordinating Unit
RP	Responsible Party
RTA	Regional Technical Advisor
SECU	Social and Environmental Compliance Unit
SEPD	Stakeholder Engagement and Public Disclosure
SES	Social and Environmental Standards
SESA	Strategic Environmental and Social Assessment
SESP	Social and Environmental Screening Procedure
SNC	Second National Communication
SRF	Strategic Results Framework
SRM	Stakeholder Review Mechanism
STAP	Scientific Technical Assistance Panel (GEF)
TA	Technical Assistance (GEF)
TE	Terminal Evaluation (GEF)
TORs	Terms of Reference
TNA	Technology Needs Assessment
TNC	Third National Communication
UNDAF	United Nations Development Assistance Framework
UNDG	United Nations Development Group
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention for Climate Change
UNIDO	United Nations Industrial Development Organization
USD	United States Dollar
W	Watt

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EXECUTIVE SUMMARY

Project summary table

Table 1: Project Summary

Project Title:	**'Nationally Appropriate Mitigation Action for Integrated Waste Management and Biogas Production in Uganda'**			
			at endorsement (USD)	*Realized at completion (USD)*[1]
GEF Project ID:	9210	GEF financing:	2,170,030	2,160,830[2]
UNDP PIMS Project ID:	5574	UNDP contribution:	900,000	656,279
Country:	Uganda	Government:	938,000	
Region:	Africa	MEMD		334,200
		NEMA		334,200
		City Municipalities		
		Jinja city		474,758
		Masaka city		62,971
		Mbale City		233,146
		Mbarara city		233,146
		KCCA	2,250,000	623,191
		Private Sector[3]		
		NWSC	7,800,000	*15,661,557*
		Kakira Sugar	2,000,000	*4,000,000*
		Other Stakeholders	350,000	
		UNCDF (Grant)	800,000	
		UNCDF (in Kind)	100,000	
Focal Area:	Climate Change	Total co-financing	**15,138,000**	**2,884,391**
FA Objectives, (OP/SP):	Scaled up action on climate change adaptation and mitigation cross sectors which is funded and implemented	TOTAL PROJECT COST	**17,308,030**	**5,045,221**
Executing Agency:	Ministry of Energy and Mineral Development	GEF endorsement:	02 August 2018	
		ProDoc Signature (date project began)	13 September 2018	
Other Partners involved:	Ministry of Water and Environment, Ministry of Local Government, Ministry of Lands Housing and Urban Development, Ministry of Finance Planning and Economic Development, NWSC, Electricity Regulatory Authority, Climate Change Unit – Ministry of Water and Environment	Closing date	Planned Closure date: August 2023 Actual Closure date: March 2024 (with an extension)	

[1] Figures shared by UNDP/ Project Team

[2] As on 30 June 2024, includes USD 41888 as commitments and USD 188220 as advance

[3] The figures reported in the Table are as per the project team. However, no co-finance contribution by NWSC and Kakira Sugar has been considered at TE as these biogas projects are not being considered as pilot project of the NAMA project, as these biogas were either already at advanced stages of implementation or were already working at the time of start date of the implementation of the NAMA project. Accordingly the figure has not been included in the Total

Introduction and brief description of the project

The project, 'Nationally Appropriate Mitigation Action (NAMA) for Integrated Waste Management and Biogas Production in Uganda' has been implemented in five cities (Kampala, Mbale, Jinja, Mbarara and Masaka) of Uganda, through the Ministry of Energy and Mineral Development. The project was funded by Global Environment Facility (GEF). The overall objective of the project was to improve waste management practices in towns and municipalities through introduction of integrated waste management practices, and deployment of biogas energy systems based on organic fraction of MSW, agro- processing of waste (where combine with municipal wastes), sewerage sludge and wastewater for biogas energy generation. The project aimed to provide environmental benefits and reduce greenhouse gas emissions due to improper and inadequate management and treatment of wastewater and organic waste in towns, municipalities, and agro-processing industry in Uganda.

The project has been nationally executed by the Ministry of Energy and Mineral Development, under the National Implementation Modality (NIM) of UNDP. UNDP was accountable for the disbursement of funds and achievement of the project goals, as per the approved work plan.

As the project implementation has reached its end, a 'Terminal Evaluation' has been carried out in order to ascertain the outcomes and impact of the programme, measured against its original purpose, objectives whilst in the process capturing the evaluative evidence of the relevance, effectiveness, efficiency and sustainability of the results of the project, which will set the stage for future similar initiatives. This is as per the standard practice for all UNDP-GEF projects. The Terminal Evaluation has been carried out by a team of independent evaluators comprising of an international consultant (Dinesh Aggarwal, India) and a National Consultant (Cliff Bernard Nuwakora, Uganda). The evaluation has been carried out as per the provisions in the 'Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects – 2020' (Guidance Document). This report provides the findings of the TE, a summary of which is given in this chapter of the report.

Project Results Frame Work and Achievements

The project comprised four outcomes. The first outcome of the project was focused on creation of the conducive conditions and supporting the municipal corporations for the uptake of biogas generation for waste management.

Under the second outcome biogas technology for waste management was to be installed at pilot locations to demonstrate the technology. It was expected that the initial set of demonstration biogas plants and power generation, when supported by financial instruments would lead to the installation of additional biogas plants using MSW and wastewater as substrate, by the private sector.

The third outcome of the project was focused on supporting the scaling-up and expansion of the project to other cities in Uganda.

The fourth and last outcome of the project was focused on developing a UNFCCC standardized baseline for waste-based biogas generation and supporting implementation within the NAMA to support the development of appropriate MRV protocol for waste-to-biogas generation.

Table 2, below provides the Project Objectives along with the summary of the planned outcomes. It also shows the corresponding set of indicators for monitoring and verification of the achievements against the Objectives and the planned Outcomes. The Table also provides the level of attainment of the targets (in terms of the indicators) and the rating for the level of achievement of the objectives and Outcomes of the project.

Table 2: Project Results Framework (as per Project Document)

Project Objective/ Component/Outcome	Objective and Outcome Indicators	End of Project Target	Status at TE	Rating at TE[4]
Project Objective: Improved waste management practices in towns and municipalities through the introduction of integrated wastewater treatment plants and biogas digesters	*Indicator 1:* Achieved direct GHG emission reductions by pilot biogas energy plants and replication (ton CO_2eq/Yr.)	88,300 tonnes CO2eq/Yr.	**0.0** • The biogas project of Kakira Sugar is not being considered as a pilot project under the NAMA project as it was commissioned much before the start date of the NAMA project. • The waste to biogas to electricity facility of NWSC is operational. However, at TE it is not being considered as a contribution by the NAMA project, as the investment decision and construction of the facility happened much before the start date of the NAMA project.	**U**
	Indicator 2: Number of people benefitting from improved organic waste management	1,980,000 (male = 990,000, female = 990,000)	**20,000** The planned pilot demonstration projects and the replication projects for waste management as planned under the project could not take shape. Thus, there was no improved organic waste management during implementation of the project. Thus, the people did not get benefited due to improved waste management The project supported establishment of small institutional demonstration biogas plants at the pilot cities of Jinja, Kampala, Masaka, Mbale and Mbarara. - Site assessment and selection was conducted and five sites selected including Masaka SS in Masaka; Kyanja Demonstration Farm at KCCA; Nakaloke SS in Mbale; Jinja College School in Jinja; and Mbarara Junior School in Mbarara City. At the time of the field mission for the TE, the small demonstration biogas facilities along with the pit type latrines were under construction. The students/staff at these institutions will be the beneficiaries (about 20000 persons) for these institutional biogas plants	**U**
	Indicator 3: Financing mobilized for investment in MSW- based biogas energy systems (US$)	US$ 11.5million	**0.0** • The biogas project of Kakira Sugar is not being considered as a pilot project under the NAMA project as it was commissioned much before the start date of the NAMA project. The waste to biogas to electricity facility of NWSC is operational. However, at TE it is not being considered as a contribution by the NAMA project, as the investment decision and construction of the facility happened much before the start date of the NAMA project.	U
	Indicator 4: Annual volume of electric energy produced by biogas pilots (MWh/Yr.)	20,300 MWh/Yr.	**30 MWh/Yr.** • The biogas project of Kakira Sugar is not being considered as a pilot project under the NAMA project as	U

[4] GEF Rating Scale: 6 = Highly Satisfactory (HS) - exceeds expectations, no shortcomings; 5 = Satisfactory (S) - meets expectations and no or minor shortcomings; 4 = Moderately Satisfactory (MS) - more or less meets expectations and some shortcomings; 3 = Moderately Unsatisfactory (MU) – somewhat below expectations and significant shortcomings; 2 = Unsatisfactory (U) - substantially below expectations and major shortcomings; 1 = Highly Unsatisfactory (HU) -severe shortcomings; Unable to Assess (U/A): available information does not allow an assessment

Project Objective/ Component/Outcome	Objective and Outcome Indicators	End of Project Target	Status at TE	Rating at TE[4]
			it was commissioned much before the start date of the NAMA project. The waste to biogas to electricity facility of NWSC is operational. However, at TE it is not being considered as a contribution by the NAMA project, as the investment decision and construction of the facility happened much before the start date of the NAMA project. Even if this facility is considered as a contribution by the NAMA project there won't be any contribution as almost the entire electricity generated gets used within the waste processing and biogas plant as auxiliary power with no exportable surplus. The NAMA project supported establishment of small institutional demonstration biogas plants along with small capacity of electricity generation at the pilot cities of Jinja, Kampala, Masaka, Mbale and Mbarara. At the time of the field mission for the TE, the small demonstration biogas facilities along with the pit type latrines and electricity generation were under construction. The aggregate capacity of the electricity generation is about 17 KW. Based on the quantum of biogas and considering that part of the biogas will be used for cooking, these generators are expected to operate for 2-3 hrs a day, leading to generation of about 30000 KWh of electricity per year	
Component 1: Establishing enabling market conditions, institutional strengthening and capacity building for improved waste management and promotion of MSW- based biogas systems **Outcome 1:** Enhanced capacity of municipalities to develop waste management plans and manage municipal solid waste and wastewater in a more sustainable manner	Number of policy and regulatory proposals developed and adopted	Support to 5 municipalities to introduce MSW disposal/off- taker fees and enforcement frameworks	• 2 Draft ordinance for the city of Mbarara and Masaka • Presentation and consultations with the stakeholders in other three pilot cities • Awareness creation workshops in additional cities • Draft National Biogas Strategy and Action Plan	**MS**
	Number of municipalities (#) reporting increased capacity to undertake IWM, as a result of the projects capacity development activities	19	The project organized training and capacity-building sessions on IWM for the municipalities	**MS**
	Multi- stakeholder platform established *(in line with UNDP Country Programme* Output indicator: 3.1.3.1: No. of functional platforms established to engage citizens at all levels for sustainable environment and natural resources, disaggregated by category)	1	• Although the Multi-stakeholder platform was launched there was almost no activity under the platform The Technical working group has representatives from different line ministries and government departments. It meet a couple of times to review the waste flow studies and a couple of other matters	**MS**

Project Objective/ Component/Outcome	Objective and Outcome Indicators	End of Project Target	Status at TE	Rating at TE[4]
Component 2: Demonstration and investment in integrated wastewater treatment and biogas plants **Outcome 2:** Biogas and WWT plants using MSW feedstock and sewage sludge procured and fully operational	Installed electricity generating capacity of MSW- based biogas pilot projects (MW)	2.9 MW from all demonstration sites	**17 KW** • The waste to biogas plant to electricity facility at Kakira Sugar having a capacity of 0.4 MW is operational. However, at TE it is not being considered as a contribution by the NAMA project as the facility was commissioned much before the start date of the NAMA project. • The waste to biogas to electricity facility of NWSC is operational. However, it is not being considered as a contribution by the NAMA project, as the investment decision and construction of the facility happened much before the start date of the NAMA project. Even if this facility is considered as a contribution by the NAMA project there won't be any contribution as almost the entire electricity generated gets used within the waste processing and biogas plant with no exportable surplus. • For the third planned pilot project MSW to Biogas to electricity at Kampala landfill site, a detailed feasibility study was carried out. It was not taken forward by the project team as it was realized that given the high capital cost, it would not be possible to get a private-sector investor. • The project has supported establishment of small institutional demonstration biogas plants at the pilot cities of Jinja, Kampala, Masaka, Mbale and Mbarara. - Site assessment and selection was conducted and five sites selected including Masaka SS in Masaka; Kyanja Demonstration Farm at KCCA; Nakaloke SS in Mbale; Jinja College School in Jinja; and Mbarara Junior School in Mbarara City. At the time of the field mission for the TE, the small demonstration biogas facilities along with the pit type latrines were under construction. These institutional demonstration biogas plants are quite small. Each facility, except Mbarara, has an installed electricity generation capacity of 3kW. The one of Mbarara is 5kW	**U**
	Number of investments undertaken	3	**0 Investments** At TE, the investments in Kakira Sugar and NWSC biogas plants are not being considered as those facilitated by the NAMA project, as the investments happened before the start date of the NAMA project	**U**
Component 3: Scale up the use of biogas technologies in other municipalities	Grant/technical assistance fund and approach to attract investment into MSW-based biogas sector established	Grant/ technical assistance fund established	• No Grant or technical assistance fund got established • No work towards attracting the private sector investment was either planed or carried out during the implementation of the project.	**U**

Project Objective/ Component/Outcome	Objective and Outcome Indicators	End of Project Target	Status at TE	Rating at TE[4]
Outcome 3: Biogas technology replicated in other potential municipalities with the help of a grant and technical assistance fund	Number of MSW- based biogas project concepts prepared (#)	5 concepts prepared	**0 Project Concept** Apart from MSW to Biogas pilot project of KCCA at Kampala (which was one of the three pre-identified pilot projects), no project concept was developed. As the biogas plant of KCCA was one of the pilot projects considered under Outcome 2, it can't be considered under Outcome 3 as well	**U**
	Grants disbursed from the fund (either technical assistance or investment)	US $900,000	• No grants were provided • Part of the funds meant for Grants were used for carrying out waste characterization studies in the pilot cities • Part of the funds were utilized for the feasibility study for MSW to Biogas/electricity at Kampala waste dump site	**U**
Component 4: Knowledge Management and Monitoring and Evaluation **Outcome 4:** Lessons learnt and success of the demonstration projects supports replication and scaling up of project results	Number of Knowledge Management products developed and disseminated (#)	Project website updated (1) Guidelines on waste management practices updated and disseminated (1) Lessons learned and best practices documented and disseminated (1)	• A project website has been created, but there is no content on the website, except a brief introduction about the project • No knowledge products or waste management practices was disseminated under the project	**U**
	Standardised baselines for calculating emissions reductions established	Standardized baselines for emissions reductions from biogas	• A consultant was hired to prepare the standardized baseline, however, this task could not be completed	**U**
	NAMA registered on the UNFCCC Registry	UNDP/GEF Project is a registered UNFCCC NAMA for Uganda	No NAMA got registered at the UNFCCC	**U**

The outcomes of the project, as mentioned in Table 2 were to be achieved through a set of outputs for each of the outcome. Different outputs in turn were to be achieved through a specific set of activities for each of the outputs. Table 3 provides the details of the outputs of the project and the activities that were to be carried out to achieve the outputs.

Table 3: Outputs and Activities of the project

Outcome/ Output	Activity
Outcome 1: Enhanced capacity of municipalities to develop waste management plans and manage municipal solid waste and wastewater in a more sustainable manner	
Output 1.1 Capacity development of municipalities other waste sector stakeholders on integrated waste management	Activity 1.1.1 – Workshops for municipalities and other waste sector stakeholders
	Activity 1.1.2 – Exchange visits between municipalities
Output 1.2 Support towns and municipalities on the design and	Activity 1.2.1 – Review and compile existing data on organic quantity and composition of waste streams for IWM plans for five municipalities (where necessary) to include waste to energy considerations

Outcome/ Output	Activity
development of waste management plans and introduction of MSW disposal/off taker fees	Activity 1.2.2 – Provide guidance in updating and developing waste management plans including the selection of appropriate biogas technology
	Activity 1.2.3 – Support to introduce MSW disposal/off- taker fees and enforcement frameworks at the municipal level
Output 1.3 Promotion of MSW biogas technology among municipalities, project developers, industry and the general public	Activity 1.3.1 – Development of sensitisation campaign
	Activity 1.3.2 – Training of promoters of IWM and source separation and the development of guidelines
Output 1.4 Integration of MSW based biogas in national policies, programmes and incentive instruments targeting renewable energy development, environmental protection and climate change mitigation	Activity 1.4.1 – Incentives introduced into national policy, legal and regulatory environment to promote increased uptake of IWM and biogas technology
	Activity 1.4.2 – Review draft National Solid Waste Management Plan and provide updates and recommendations for inclusion of biogas systems where necessary
	Activity 1.4.3 – Recommendations made for IWM enforcement strategy in line with the draft National Solid Waste Management Plan and environmental protection legislative framework
	Activity 1.4.4 – Policy advocacy for private sector and recommendations made for renewable energy and electricity regulation
Output 1.5 Multi- stakeholder platform on waste management and biogas established, whereby stakeholders will take on joint responsibility	Activity 1.5.1 – Assist MEMD, NEMA, UAAU, PSFU to establish multi- stakeholder platform on waste management and biogas
Outcome 2: Biogas and WWT plants using MSW feedstock and sewage sludge procured and fully operational	
Output 2.1 Business models designed for biogas digester systems for a range of plant sizes	Activity 2.1.1 – Development and promotion of MSW biogas business models
Output 2.2 Feasibility studies, permitting procedures and final engineering plans executed and formalization of responsibilities of project partners	Activity 2.2.1 – Feasibility studies conducted/reviewed for three sites
	Activity 2.2.2 – Permitting procedures conducted
	Activity 2.2.3 – Development of final engineering plans conducted
	Activity 2.2.4 – Clarification of roles, evaluation of cash flow projections and optimization of financial structure
Output 2.3 Technical support and training for pilot projects	Activity 2.3.1 – Training of technical staff and preparation of manuals and procedures
	Activity 2.3.2 – Monitoring and optimization of operational procedures and technical performance of pilot plants
Output 2.4 Investment financing for the 3 plants facilitated and secured	Activity 2.4.1 – Support to pilot sites to secure finance
Output 2.5 Procurement and construction or modification of biogas demonstration plants	Activity 2.5.1 – Procurement and construction of biogas plant at New Kampala Landfill
	Activity 2.5.2 – Procurement and construction of biogas auxiliary systems at Nakivubo wastewater treatment plant
	Activity 2.5.3 – Procurement and construction of biogas auxiliary systems at Kakira sugar factory
Outcome 3: Biogas technology replicated in other potential municipalities with the help of a grant and technical assistance fund	
Output 3.1 Development of a pipeline of MSW- based biogas projects	Activity 3.1.1 – Elaboration of conceptual proposals
	Activity 3.1.2 – Assistance to facilitate access to existing financial products and facilities
Output 3.2 Mid and long- term strategy for the replication of biogas projects developed and implemented	Activity 3.2.1 – Biogas strategy and implementation plan drafted
	Activity 3.2.2 – Learning days at biogas sites
Output 3.3	Activity 3.3.1 – Grant and technical assistance fund for MSW- based biogas projects

Outcome/ Output	Activity
Grant/technical assistance fund and approach to attract investment into MSW based biogas sector developed	
Outcome 4: Lessons learnt, and success of the demonstration projects supports replication and scaling-up of project results	
Output 4.1 Project website	Activity 4.1.1 – Development of Project website
Output 4.2 Guidelines on waste management practices updated, lessons learned and best practices documented and disseminated	Activity 4.2.1 – Conduct lessons learned studies
	Activity 4.2.2 – Dissemination of lessons learned studies
Output 4.3 Biogas technology for energy generation and lessons learned from pilot projects integrated into the national renewable energy and MEMD programmes, standardized baselines for calculating emission reductions established, and NAMA registered on the UNFCCC NAMA Registry.	Activity 4.3.1 – Design and submit proposals to update and enhance regulatory framework for Biogas technology for energy and integrate lessons learned from pilot projects into the national renewable energy and MEMD programmes
	Activity 4.3.2 – Development of standardized baselines for calculating Emissions reductions from Biogas
	Activity 4.3.3 – Registration of project on UNFCCC NAMA Registry
Output 4.4 Annual Project Implementation Reviews	Activity 4.4.1 – Conduct annual Project Implementation Reviews
Output 4.5 Mid-Term Review	Activity 4.5.1 – Conduct Mid-Term Review
Output 4.6 Project Terminal Evaluation	Activity 4.6.1 – Conduct Terminal Evaluation

The Terminal Evaluation of the project has been carried out keeping in mind the expected Outcomes and Outputs along with the activities that were proposed to be carried out. Changes made in the Outcomes, Outputs, Indicators, Targets, and Activities at the time of project inception or later (e.g., as a result of MTR) have also been taken into account.

Evaluation Ratings

As per the requirements of the TOR for Terminal Evaluations, Table 4 provides the ratings for relevance, effectiveness, efficiency, impact, and sustainability of the project. The Table also provides the ratings for Monitoring and Evaluation (M&E), Implementing Agency (IA) & Executing Agency (EA) Execution, and Assessment of Outcomes. Ratings have been provided using the obligatory GEF rating scale.

Table 4: Terminal Evaluation Ratings

1. Monitoring and Evaluation	Rating[5]		2. Implementing Agency (IA) & Executing Agency (EA) Execution	Rating
M&E design at entry	**S**		Quality of UNDP Implementation	**S**
M&E Plan Implementation	**S**		Quality of Execution - Executing Agency	**S**
Overall quality of M&E	**S**		Overall Quality of Implementation / Execution	**S**
3. Assessment of Outcomes	**Rating**		**4. Sustainability**	**Rating[6]**
Relevance	**S**		Financial resources	**U**
Effectiveness	**U**		Socio-political	**U**
Efficiency	**U**		Institutional framework and governance	**U**
Overall Project Outcome Rating	**U**		Environmental	**U**
			Overall likelihood of sustainability	**U**

[5] Ratings for Outcomes, Relevance, Effectiveness, Efficiency, M&E, I&E Execution: Highly Satisfactory (HS): no shortcomings; Satisfactory (S): minor shortcomings; Moderately Satisfactory (MS); Moderately Unsatisfactory (MU): significant shortcomings; Unsatisfactory (U): major problems; Highly Unsatisfactory (HU): severe problems

[6] Ratings for Sustainability: Likely (L): negligible risks to sustainability; Moderately Likely (ML): moderate risks; Moderately Unlikely (MU); significant risks; Unlikely (U): severe risks

Summary of Conclusions

The objective of the project was to support the management of waste through the processing of waste to produce biogas and generate electricity. It was envisaged that the planned intervention would lead to a reduction in the emission of GHGs due to the avoidance of methane emissions, due to anaerobic fermentation of the organic waste and due to use of the biogas (a renewable source of energy) for the generation of electricity. The development benefits of the project were; management of waste scientifically and sustainably and increased availability of electricity.

Except for some achievements under Outcome 1 of the project, there has been no achievement for any of the planned Outcomes of the Project. However, one of the issues is that while the capacity-building efforts were directed at the management of MSW and the officials of municipalities, the pre-selected pilot projects (under Outcome 2) to demonstrate the technology and the business models were from industrial wastewater and sewage. Although the third pilot project which was pre-selected at the project design stage pertained to the gainful utilization of MSW using biogas technology, this pilot project could not get implemented. A mismatch between the type of biogas pilot projects and the intended interventions in the MSW sector reduced the utility of the results of Outcome 1 to a large extent. There is hardly any learning (in terms of technology, business models, or management) that could be carried from the biogas pilot projects at Kakira Sugar and NWSC.

Under Outcome 2 pilot biogas plants using MSW and other waste were to be established. Three pilot project activities were pre-selected at the time of project design. Two of these three pilot projects were either commissioned before the start date of the NAMA project or were at advanced stages of implementation. Due to this reason, at TE, these two pilot projects have not been considered as contributions by the NAMA project. The third pre-identified pilot project was for the MSW-based biogas plant in Kampala. The NAMA project supported the feasibility study for this pilot project, however, the project team did not take it further due to very high capital cost and the perception that it would not be possible to get a private sector investor for this pilot project. The lack of success in establishing the pilot projects is partly attributable to the deficiencies in the project design, which include the absence of a mechanism to approach the potential investors from the private sector; the absence of assessment of the potential investors at the project design; wrong selection of pilot projects; etc. Some of the other reasons for deficiencies in achieving the results for outcome 2 include; delays in the start of project implementation; and lack of involvement of the private sector bodies in project implementation. Although, at TE the pre-selected biogas projects at Kakira Sugar and NWSC are not being considered as pilot projects of the NAMA project, these two projects could still have acted as demonstration projects and helped in replications. But this did not happen as the biogas facilities at Kakira Sugar and at NWSC don't use MSW as the substrate, also the technologies and business models for these two biogas plants were completely different.

Outcome 3 of the project was to follow from the success of Outcome 2 of the project. As was explained before, the pre-selected pilot/demonstration projects were not based on MSW for the generation of biogas, whereas the replication of the pilot projects was sought for MSW-based biogas generation facilities. The feasibility study for one of the pre-selected MSW biogas projects revealed that the capital cost being very high, it would not be possible to get private sector investment for establishing MSW-based biogas plants in the country. As there was no demonstration of the technology and business models for MSW to biogas facilities and a lack of potential private sector interest to invest, no activities/results under Outcome 3 of the project could happen. The adaptive measure of installing trommel mills at three of the five pilot cities improved the level of utilization of funds meant for providing grant support to the replication projects, but it did not help to improve the performance and overall results of the NAMA project in terms of the objectives of the NAMA project.

In the absence of success stories, knowledge products did not get produced under Outcome 4 of the project. Some of the other planned activities to support replication and scaling up the results, like registration of the project as NAMA project at UNFCCC and preparation of Standardized Baseline

(SBL) also could not be completed, partly due to the issues with the project design and partly due to project implementation issues. For example, the project team, attempted to hire a DOE (Designated Operation Entity of UNFCCC) for the preparation of the SBL, whereas procedurally the SBLs are required to be prepared by the parties on their own (or by hiring consultants), and the role of DOE is to validate the SBLs prepared by the parties.

Recommendations

Table 5: Recommendations

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
	Corrective actions for the design, implementation, monitoring, and evaluation of the project			
1	For projects of this nature, where funding by the private sector is envisaged for large-scale infrastructure projects, strategy/approach to invite the investment needs to be a part of the project design and participation of the private sector (e.g. industry associate, trade associations) needs to be ensured during the implementation of the project. Further, the available investment opportunists need to be widely amongst potential investors, and interest to invest needs to be invited on a competitive bidding basis.	MSW to biogas project should be invited in a formal manner and on a competitive basis rather than a limited basis. . participation of the private sector to implement the potential projects needs to be formalized	At the time of design of a future development project where investment by the private sector is envisaged	UNDP/National Counterparts
2	For projects that involve the introduction of the technology (like waste to biogas in the present case), which has not been experienced by the country in the past, it is important to take on board consultants/experts who have international exposure to the technology. Such experts can either be hired for individual tasks/activities or can be hired as technical advisors for specific periods of project implementation.	The involvement of international consultants will ensure consideration of the best available technology and concepts, which will benefit the project. It will also help in updating the knowledge available to the national stakeholders.	At the time of design of a future development project where investment by the private sector is envisaged	UNDP/National Counterparts Project implementation units
3	It is recommended that for feasibility studies, which involve technologies that are presently not in existence in the country, the procurement of consultancy should be global rather than national. (please see recommendation #2 and recommendation #4 as well)	This would have ensured that the best global technologies and practices were brought on board while carrying out the feasibility studies	At the time of implementation of a future project of this nature At the time of implementation of a future project of this nature	UNDP/National Counterparts
4	It is recommended that unless there are compelling reasons, the implementation arrangements made at the project design stage should not be changed. The implementation arrangements and modalities are decided at the project design stage after due consultations with all the stakeholders and deliberations on the capacity of the implementation partners. To the extent possible,	The change in implementation method at the time of project inception (from consultancies to government implementation) particularly for Outcome 1, did not go well due to lack of in-country experience and exposure to biogas technologies and private	At the time of implementation of a future project of this nature	UNDP Project Implementation Partners Project Management Unit

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
	concerns and issues regarding implementation arrangements should be addressed at the project design stage	sector participation in waste-to-energy projects.		
5	It is recommended that the project design and the results framework should have restricted itself to the use of MSW and other waste matter for the generation of biogas without implicitly providing for the use of biogas for electricity generation. The idea of the project was the management of waste, avoidance of GHG emissions, and gainful utilization of the waste for energy.	In case the project design does not implicitly provide for the use of biogas for electricity generation, it will provide the desired flexibility to the project implementers for using the biogas for any end application, without compromising the objective of the project The project design may be left flexible in terms of the way to utilize the biogas e.g., cooking, lighting, electricity, etc.	At the time of design of a future development project of this nature	UNDP/National Counterparts
	Actions to follow up or reinforce initial benefits from the project			
6	Post successful demonstration of the concept, and peer learning. It is recommended that replication and scaling up of the institutional biogas plants be carried out.	The target institutions for replication and scaling up may include large shopping centres/malls, and fruit and vegetable markets. This will partly reduce the overall load of waste required to be handled and managed by the civic authorities	As soon as possible	UNDP National Counterparts
7	It is recommended to involve the private sector party to separate compost plastics and other inert materials at the three MSW dump sites, using the trommel mills supported by the NAMA project.	As an adaptive measure, a significant part of the project funds has been used for the procurement and installation of trommel mills at three MSW dumpsites. Going forward the results of this activity will depend on the continued successful operations of these trommel mills. Given the issues with the financial and institutional capacities of the municipalities, the operation of these mills in the future may not be sustained unless actions are taken. One such action could be the involvement of the private sector, wherein the machines may be leased or rented, or other appropriate financial/business models may be worked out.	As soon as possible	UNDP National Counterparts
	Proposals for future directions underlining main objectives			
8	It is recommended that the private sector investment for the management of waste be invited by a competitive bidding process, wherein the selection of technology and processes for treatment of waste is left to the investor. The party which asks for minimum tipping fee and other concessions may be awarded the contract. The responsibility of the	Efforts made in the past in Uganda to address the issue of management of MSW and other wastes and the related emissions of GHGs, by involving private sector investment has not been very successful. The efforts has got largely restricted to collection of waste (from	As soon as possible	National Governments Municipalities

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
	authorities be restricted to monitoring and verification of the work done as per the requirements	selected locations) by the private operators, and dumping it at the waste dumpsites One of the envisaged reasons for this is the lack of business/financial models.		
	Best/worst practices in addressing issues relating to relevance, performance, and success			
9	Implementation arrangements for the implementation of GEF and other grant projects in Uganda may be deliberated upon, in terms of the respective responsibilities of the executing agencies and the national counterparts. Wherever required implementation support be provided by the executing agency and services of outside experts be taken for providing the required inputs.	Implementation arrangements for the grant projects need to be made keeping in mind the respective capacity of the participating institutions (implementation partners). The performance of the past projects to manage MSW has not been encouraging e.g. the CDM-PoA project for MSW to Compost in Uganda is in a bad state. Similarly, the PPA model which was tried in the past by the Kampala City for MSW got restricted to the collection of waste by small-time private operators. The critical aspect of treatment and safe disposal of MSW did not get addressed. There is a need to strengthen the institutional capacity of important government actors in the overall process of waste treatment and disposal.	At the time of design and implementation of the next externally funded development project	UNDP National Counterparts Project Implementation Team

1. INTRODUCTION

1.1 Context, purpose of the terminal evaluation and objectives

The project, 'Nationally Appropriate Mitigation Action for Integrated Waste Management and Biogas Production' has been implemented in Uganda. Pilot activities under the project have been implemented in five cities (Kampala, Mbale, Jinja, Mbarara, and Masaka) in Uganda. The project has been implemented with funding from the Global Environment Facility (GEF), and the GEF Executing Agency for the project was the United Nations Development Programme (UNDP). With the project implementation coming to an end a 'Terminal Evaluation' has been organized per GEF and UNDP guidelines and procedures. The evaluation has been carried out as per the provisions in the 'Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects – 2020[7]' (Guidance Document).

Annex A provides the 'Terms of Reference' for the Terminal Evaluation. The target audiences for the terminal evaluation are funding agencies, project partners and beneficiaries, GEF, UNDP CO in Uganda, UNDP at regional and HQ levels, and the UNDP Evaluation Office. The broader defined objectives of the terminal evaluation were to compare planned outputs and outcomes of the project to actual outputs and outcomes and (if applicable) identify the causes and issues that contributed to the non-achievement of the desired results and targets of the project. One of the other objectives of the evaluation was to draw lessons that can both improve the sustainability of benefits from the project and aid in the overall enhancement of UNDP programming.

A team of consultants, comprising of an international consultant, Dinesh Aggarwal (India), and a national consultant, Cliff Bernard Nuwakora (Uganda), was selected and contracted by the UNDP, Uganda country office (CO) to carry out the terminal evaluation. Findings of the TE are presented in this report.

1.2 Scope of terminal evaluation

Table 6: Scope of terminal evaluation

Terminal Evaluation Timeframe	April 2024 to July 2024
Project Implementation Timeframe	June 2017 to Dec 2023 (extended to March 2024)
The period being evaluated	The entire project implementation duration (from June 2017 to Dec 2023)
Segments of the target beneficiaries included	Targeted beneficiaries include national counterparts, government officials, and urban households
The geographic area included, and which components were assessed	The geographic area covered is the entire country for the overall objective of the project and the Kampala, Mbale, Jinja, Mbarara, and Masaka cities of Uganda for the pilot activities. All the components of the projects as mentioned in the project document were covered in the evaluation.
Country	Uganda
Region	Africa
GEF Focal Area:	Climate Change
FA Objectives, (OP/SP):	Scaled-up action on climate change adaptation and mitigation across sectors which is funded and implemented

[7] Guidance for Conducting Terminal Evaluations of UUDP-Supported, GEF-Financed Projects – 2020. http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf

1.3 Methodology of the Terminal Evaluation

As mentioned before, the terminal evaluation has been carried out following 'Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects – 2020'. Before the start of the Terminal Evaluation, an inception report was prepared and shared with the UNDP CO in Uganda and the project team. The inception report provided the outlines of the approach and methodology to be followed while carrying out the evaluation. It also provided the proposed timelines for the evaluation. The inception report included a table providing the criteria for the evaluation and the list of main evaluation questions. The table of terminal evaluation criteria and the questions are given in **Annex B**. Accordingly, the methodology for carrying out the Terminal Evaluation was comprised of the following activities:

- **Review of Documents:** Review of 'Project Design Document' and all relevant sources of information including documents prepared during the preparation phase. The review of documents included a review of financial data, the mid-term evaluation report, Project Implementation Reviews, etc. **Annex C** provides the list of documents reviewed. Some of the documents were shared after submission of the draft TE report.

- **Mission to Uganda, interviews with stakeholders, and site visits**. A mission to Uganda was organized from 26 March 2024 to 05 April 2024. The mission started with a briefing by the UNDP CO and the project team. During the mission, interviews with different stakeholders and project participants were carried out. The mission included discussions with the officials of the municipalities in the cities, where the waste management pilot activities were supported by the GEF project. During the field mission discussions were also held with the targeted beneficiaries at the locations where the pilot activities under the project were carried. **Annex D** provides the overall schedule of the missions and the stakeholders interviewed during the mission. The mission also served the purpose of collecting some of the missing information and documents to be reviewed.

The assessment of project performance has been carried out based upon the expectations set out in the Project Logical Framework/Results Framework which provides performance and impact indicators for project implementation along with their corresponding means of verification, and the review of results that have been delivered by the project. For this purpose, the Logical Framework as provided in the 'Project Document' was referred. There was no change in the Logical Framework of the project at the time of project inception or at the time of the mid-term review of the project.

The review of documents provided basic information regarding the activities carried out to attain the desired outputs and outcomes. However, the mission was needed to verify the information, get missing data, and learn the opinions of stakeholders and project participants to interpret the information. During the mission, the interviews with the key stakeholders/project participants were based on an open discussion to allow respondents to express what they feel are the main issues. This was followed by more specific questions on the issues mentioned. During the interviews, the evaluation criteria and the questions (Please see **Annex B**) were used as the checklist to raise relevant questions and issues.

The evaluation was conducted following the principles outlined in the United Nations Evaluation Group 'Ethical Guidelines for Evaluation' as given in **Annex E**.

1.4 Limitations

The limitations of the Terminal Evaluation include the time available for carrying out the field mission. In-person meetings with the stakeholders were carried out during the mission. The evaluation team is of the view that the meetings and consultations carried out within the available time were sufficient to provide the required level of clarity and information for the TE.

1.5 Structure of the Terminal Evaluation Report

The structure of the report is as per the format suggested in the Terms of Reference for the terminal evaluation. However, the contents of the chapter on findings have been split into three separate chapters due to the size of the text.

The report starts with a chapter providing an introduction which is followed by a chapter on the project description, and findings. The last chapter of the report provides the conclusions and recommendations. Additional information is provided in the Annexes to the report. An Executive Summary of the report is provided at the beginning of the report. Concerning the discussion of the findings, the report elaborates on three general areas: project formulation, project implementation, and project results, in three different Chapters. The overall report is organized as follows;

Chapter 1: Introduction to the project
Chapter 2: Project description and development context. Most of the contents of this Chapter come from the Project Document. This chapter provides information about the project, to a reader of the TE report at any point in time.
Chapter 3: Findings: Project design and formulation. This chapter provides an oversite of different 'design aspects' of the project. The aspects covered in this section of the report are termed as 'factors affecting performance'. The role of these aspects (if applicable) is deliberated in Chapter 5 of the TE report. This forms the basis to determine if any of the design aspects have impacted the results of the project (which are covered in Chapter 5 of the report).
Chapter 4: Findings: Project implementation. This chapter of the report provides information about the provision in the project design, like project implementation arrangements, M&V, stakeholder participation, roles of implementing partners and GEF agency, etc. Most of this information comes from the project document.
Chapter 5: Findings: Project results. This Chapter deliberates upon the achievement of results and objectives of the projects. If applicable, an assessment regarding the reasons for the shortfall in performance is carried out in terms of the 'Factors Affecting Performance'.
Chapter 6: Conclusions and Recommendations. This Chapter provides the conclusions and a set of recommendations

Annex B shows where the main criteria and questions of the Terminal Evaluation can be found in different sections of the report.

2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

2.1 Project start and duration

Table 7 provides the details regarding the timelines for project approval and implementation.

Table 7: Project Approval and Implementation Timelines

Event	Date
Project Duration	60 Months
PIF Approval Date	Oct 20, 2015
CEO Endorsement Date	Aug 02, 2017
Project Document Signature Date (project start date):	Sep 13, 2018
Date of Inception Workshop	Feb 27,2019
First Disbursement Date	Feb 27, 2019
Expected Date of Mid-term Review	Mar 13, 2021
Actual Date of Mid-term Review	Aug 11, 2022
Expected Date of Terminal Evaluation	Jun 13, 2023
Date of Terminal Evaluation	Mar to August 2024
Original Planned Closing Date	Sep 13, 2023.
Revised Planned Closing Date	March 31, 2024
Expected date of financial closure	Sep 30, 2024

The implementation timelines for the project were extended to March 31, 2024, to accommodate delayed delivery of the last batch of equipment procured under the project. As per the project team, the TE of the project was delayed due to administrative issues regarding the allocation of the funds. However, as the project's implementation was extended to March 2024, the terminal evaluation of the project in the second quarter of 2024 was timely.

2.2 Problems that the project sought to address[8]

The project was focused on environmental sustainability in Uganda. The environmental problems that the Project sought to address are wastewater pollution and general environmental degradation due to improper and inadequate management and treatment of municipal liquid and solid waste in municipalities. Improper management of waste streams (both solid and liquid) from the agro-processing industry adds to the overall problem of sustainable waste management. In Uganda, most waste streams are poorly managed right from generation to disposal and there are noticeable uncontrolled and open flows directly into the environment without any treatment. Open dumping and burning of solid waste is a common practice in many parts of the country, resulting in the uncontrolled release of pollutants to soil, surface water, groundwater, and air.

By introducing integrated waste treatment and biogas plants in the selected locations (with potential for scaling up to additional sites) the Project was to improve solid and liquid waste management through recovery and reuse and was to reduce local air pollution, water pollution, and GHG emissions. The Project was to also strengthen the environmental management capacity of local and central government, and support the implementation of the national public health and environmental commitments and commitments to climate change mitigation. The project aimed to provide environmental benefits and reduce greenhouse gas emissions from improper and inadequate management and treatment of wastewater and organic waste in towns, municipalities and agro- processing industry in Uganda.

[8] Based on Project Document

2.3 Immediate and development objectives of the project[9]

As mentioned in the project document, the project addresses seven Sustainable Development Goals (SDGs) of the United Nations including: 5) Gender equality; (6) clean water and sanitation; (7) affordable and clean energy; (9) industry innovation and infrastructure; (11) sustainable cities and communities; (12) responsible consumption and production; (13) climate action.

There are key gender and marginalized peoples issues that have been identified in the solid and liquid waste sector in Uganda including; many women and marginalized people are employed in the informal waste sector in and around urban areas, few women are in decision- making positions in the solid and liquid waste sector, women's voices about proper and integrated waste management often go unheard, yet they are very often the people dealing (generating and informally recovering) household and institutional solid waste, lack of access to and control over income, and limited skills in solid waste recovery and reuse results in women's inability to get attracted, or invest and participate in waste management solutions or even access the benefits from resources recovered from waste after recycling.

The project was destined to contribute towards clean and renewable energy in the country. The Ministry of Energy and Mineral Development (MEMD) is pushing forward the use of renewable energy sources, in line with Uganda's Renewable Energy Policy.

2.4 Baseline and Expected Results

As per the project document, under a business- as- usual scenario, the volume of waste generated in urban areas of Uganda would continue to grow unabated. The three underlying trends driving the ever-proliferating waste generation in Uganda's cities – namely economic expansion, rapid population growth, and urbanization – are expected to continue. In the absence of the UNDP/GEF project, under the business- as- usual scenario, the approach to waste management would continue to be disorganized, haphazard, and under- resourced.

In the baseline scenario, the municipal authorities collect less than half of the waste generated in urban areas. The uncollected waste is mostly burnt (74.1%) or dumped (15.2%) in open places. Less than one- third of industries and factories have wastewater treatment facilities or discharge permits. Efforts to reduce and sustainably manage urban waste flows would be sporadic and would not be sufficient to address the prevailing barriers. Under this scenario, it is extremely unlikely that the market for waste-to- energy projects such as biogas would develop.

Institutional and financial support for the initiatives for waste management is limited and knowledge of energy projects within the waste sector is insufficient. To develop a market for MSW biogas- based on- grid electricity generation, several key market interventions are necessary to remove barriers to project development. As a consequence, in the business- as- usual scenario, private developers of renewable energy projects are not likely to enter the waste management sector to implement and operate biogas- based power systems.

2.5 Results Framework

The results framework of the project providing the objectives and the expected outcomes along with corresponding indicators is presented in Table 8. No changes in the log-frame were carried out at the time of project inception or at the time of MTR.

[9] As per project document

Table 8: Results Framework of the project

Project Objective/ Component/Outcome	Objective and Outcome Indicators	Baseline	Mid- term Target	End of Project Target
Project Objective: Improved waste management practices in towns and municipalities through the introduction of integrated wastewater treatment plants and biogas digesters	*Indicator 1:* Achieved direct GHG emission reductions by pilot biogas energy plants and replication (ton CO_2eq/Yr.)	0 tonnes CO2eq/Yr.	12,200 tonnes CO2eq/Yr.	88,300 tonnes CO2eq/Yr.
	Indicator 2: Number of people benefitting from improved organic waste management	0	7,500 (male = 3,750, female = 3,750)	1,980,000 (male = 990,000, female = 990,000)
	Indicator 3: Financing mobilized for investment in MSW- based biogas energy systems (US$)	0	US$ 6.5 million	US$ 11.5million
	Indicator 4: Annual volume of electric energy produced by biogas pilots (MWh/Yr.)	0 MWh/Yr.	2,800 MWh/Yr.	20,300 MWh/Yr.
Component 1: Establishing enabling market conditions, institutional strengthening and capacity building for improved waste management and promotion of MSW- based biogas systems **Outcome 1:** Enhanced capacity of municipalities to develop waste management plans and manage municipal solid waste and wastewater in a more sustainable manner	Number of policy and regulatory proposals developed and adopted[10]	0	3	Support to 5 municipalities to introduce MSW disposal/off- taker fees and enforcement frameworks
	Number of municipalities (#) reporting increased capacity to undertake IWM, as a result of the projects capacity development activities	0	13	19
	Multi- stakeholder platform established *(in line with UNDP Country Programme* Output indicator: 3.1.3.1: No. of functional platforms established to engage citizens at all levels for sustainable environment and natural resources, disaggregated by category)	0	1	1
Component 2: Demonstration and investment in integrated wastewater treatment and biogas plants **Outcome 2:** Biogas and WWT plants using MSW feedstock and sewage sludge procured and fully operational	Installed electricity generating capacity of MSW- based biogas pilot projects (MW)	0 MW	0.4 MW from Kakira Sugar Works	2.9 MW from all demonstration sites
	Number of investments undertaken	0	2	3

[10] At the time of project inception, it was suggested to change the text of the indicator to "Number of gender responsive policy and regulatory proposals developed and adopted Gender responsive waste management plans and ordinances speaking to biogas and off-take fees respectively amongst others developed and adopted". However, this suggested change did not got implemented during implementation of the project.

Project Objective/ Component/Outcome	Objective and Outcome Indicators	Baseline	Mid- term Target	End of Project Target
Component 3: Scale up the use of biogas technologies in other municipalities **Outcome 3:** Biogas technology replicated in other potential municipalities with the help of a grant and technical assistance fund	Grant/technical assistance fund and approach to attract investment into MSW- based biogas sector established	-	-	Grant/ technical assistance fund established
	Number of MSW- based biogas project concepts prepared (#)	0	0	5 concepts prepared
	Grants disbursed from the fund (either technical assistance or investment)	0	0	US $900,000
Component 4: Knowledge Management and Monitoring and Evaluation **Outcome 4:** Lessons learnt and success of the demonstration projects supports replication and scaling up of project results	Number of Knowledge Management products developed and disseminated (#)	0	Project website established (1) Guidelines on waste management practices established and disseminated (1)	Project website updated (1) Guidelines on waste management practices updated and disseminated (1) Lessons learned and best practices documented and disseminated (1)
	Standardised baselines for calculating emissions reductions established	-	-	Standardised baselines for emissions reductions from biogas
	NAMA registered on the UNFCCC Registry			UNDP/GEF Project is a registered UNFCCC NAMA for Uganda

The results framework of the project did not provide the corresponding Outputs for the planned Outcomes. However, the corresponding Outputs were detailed in other parts of the project document. The outcomes of the project, as mentioned in Table 8 were to be achieved through a set of outputs for each of the outcome. Different outputs in turn were to be achieved through specific set of activities for each of the output. Table 9 provides the details of the outputs of the project and the activities which were to be carried out to achieve the outputs.

Table 9: Outputs and Activities of the project

Outcome/ Output	Activity
Outcome 1: Enhanced capacity of municipalities to develop waste management plans and manage municipal solid waste and wastewater in a more sustainable manner	
Output 1.1 Capacity development of municipalities other waste sector stakeholders on integrated waste management	Activity 1.1.1 – Workshops for municipalities and other waste sector stakeholders
	Activity 1.1.2 – Exchange visits between municipalities
Output 1.2 Support towns and municipalities on the design and development of waste management plans and introduction of MSW disposal/off taker fees	Activity 1.2.1 – Review and compile existing data on organic quantity and composition of waste streams for IWM plans for five municipalities (where necessary) to include waste to energy considerations
	Activity 1.2.2 – Provide guidance in updating and developing waste management plans including the selection of appropriate biogas technology
	Activity 1.2.3 – Support to introduce MSW disposal/off- taker fees and enforcement frameworks at the municipal level
Output 1.3	Activity 1.3.1 – Development of sensitisation campaign

Outcome/ Output	Activity
Promotion of MSW biogas technology among municipalities, project developers, industry and the general public	Activity 1.3.2 – Training of promoters of IWM and source separation and the development of guidelines
Output 1.4 Integration of MSW based biogas in national policies, programmes and incentive instruments targeting renewable energy development, environmental protection and climate change mitigation	Activity 1.4.1 – Incentives introduced into national policy, legal and regulatory environment to promote increased uptake of IWM and biogas technology
	Activity 1.4.2 – Review draft National Solid Waste Management Plan and provide updates and recommendations for inclusion of biogas systems where necessary
	Activity 1.4.3 – Recommendations made for IWM enforcement strategy in line with the draft National Solid Waste Management Plan and environmental protection legislative framework
	Activity 1.4.4 – Policy advocacy for private sector and recommendations made for renewable energy and electricity regulation
Output 1.5 Multi- stakeholder platform on waste management and biogas established, whereby stakeholders will take on joint responsibility	Activity 1.5.1 – Assist MEMD, NEMA, UAAU, PSFU to establish multi-stakeholder platform on waste management and biogas
Outcome 2: Biogas and WWT plants using MSW feedstock and sewage sludge procured and fully operational	
Output 2.1 Business models designed for biogas digester systems for a range of plant sizes	Activity 2.1.1 – Development and promotion of MSW biogas business models
Output 2.2 Feasibility studies, permitting procedures and final engineering plans executed and formalization of responsibilities of project partners	Activity 2.2.1 – Feasibility studies conducted/reviewed for three sites
	Activity 2.2.2 – Permitting procedures conducted
	Activity 2.2.3 – Development of final engineering plans conducted
	Activity 2.2.4 – Clarification of roles, evaluation of cash flow projections and optimization of financial structure
Output 2.3 Technical support and training for pilot projects	Activity 2.3.1 – Training of technical staff and preparation of manuals and procedures
	Activity 2.3.2 – Monitoring and optimization of operational procedures and technical performance of pilot plants
Output 2.4 Investment financing for the 3 plants facilitated and secured	Activity 2.4.1 – Support to pilot sites to secure finance
Output 2.5 Procurement and construction or modification of biogas demonstration plants	Activity 2.5.1 – Procurement and construction of biogas plant at New Kampala Landfill
	Activity 2.5.2 – Procurement and construction of biogas auxiliary systems at Nakivubo wastewater treatment plant
	Activity 2.5.3 – Procurement and construction of biogas auxiliary systems at Kakira sugar factory
Outcome 3: Biogas technology replicated in other potential municipalities with the help of a grant and technical assistance fund	
Output 3.1 Development of a pipeline of MSW- based biogas projects	Activity 3.1.1 – Elaboration of conceptual proposals
	Activity 3.1.2 – Assistance to facilitate access to existing financial products and facilities
Output 3.2 Mid and long- term strategy for the replication of biogas projects developed and implemented	Activity 3.2.1 – Biogas strategy and implementation plan drafted
	Activity 3.2.2 – Learning days at biogas sites
Output 3.3 Grant/technical assistance fund and approach to attract investment into MSW based biogas sector developed	Activity 3.3.1 – Grant and technical assistance fund for MSW- based biogas projects

Outcome/ Output	Activity
Outcome 4: Lessons learnt, and success of the demonstration projects supports replication and scaling-up of project results	
Output 4.1 Project website	Activity 4.1.1 – Development of Project website
Output 4.2 Guidelines on waste management practices updated, lessons learned and best practices documented and disseminated	Activity 4.2.1 – Conduct lessons learned studies
	Activity 4.2.2 – Dissemination of lessons learned studies
Output 4.3 Biogas technology for energy generation and lessons learned from pilot projects integrated into the national renewable energy and MEMD programmes, standardized baselines for calculating emission reductions established, and NAMA registered on the UNFCCC NAMA Registry.	Activity 4.3.1 – Design and submit proposals to update and enhance regulatory framework for Biogas technology for energy and integrate lessons learned from pilot projects into the national renewable energy and MEMD programmes
	Activity 4.3.2 – Development of standardized baselines for calculating Emissions reductions from Biogas
	Activity 4.3.3 – Registration of project on UNFCCC NAMA Registry
Output 4.4 Annual Project Implementation Reviews	Activity 4.4.1 – Conduct annual Project Implementation Reviews
Output 4.5 Mid-Term Review	Activity 4.5.1 – Conduct Mid Term Review
Output 4.6 Project Terminal Evaluation	Activity 4.6.1 – Conduct Terminal Evaluation

2.6 Main stakeholders

Table 10 provides the list of main stakeholders along with the details of their respective roles (as envisaged at the time of project design) in the project

Table 10: List of main stakeholders[11] involved in the NAMA Biogas Project

Stakeholder	Role
Ministry of Energy and Mineral Development	MEMD served as the lead implementing partner at the national level for this initiative. The MEMD was guided by the Renewable Energy Policy (2007), including the promotion and development of biogas technology in the country. MEMD led the project teams under Component 2 (Demonstration and Investment), including activities related to the possibility of connecting the biogas plants to grid infrastructure and in the negotiation of the feed- in tariff. MEMD was also to lead Component 3 – Scale up.
National Environment Management Authority (NEMA)	As a regulatory authority, NEMA is responsible for waste management policy development. As the current policy is being reviewed, NEMA will be instrumental in the finalization of the integrated Solid Waste Management policy and in supporting the creation of an enabling environment for wastewater treatment and utilization of biogas technology.
National Water and Sewerage Corporation (NWSC)	NWSC is responsible for the supply of water and treatment of wastewater in urban Uganda. It is a key player in the sector with a vast knowledge base, and has a mandate to do wastewater treatment in urban centres outside Kampala. NWSC was to be involved in the planning and design of the integrated wastewater and biogas plants and was to provide the necessary data on wastewater. NWSC was to manage and operate the demonstration project located at the NWSC Navikubo plant constructed under the project.

[11] Source: Project Document

Stakeholder	Role
Directorate of Water Resources Management (DWRM)	The DWRM is responsible for monitoring and regulating water resources and issuing wastewater discharge permits. Its mandate includes the coordination of stakeholders in the wastewater sector. DWRM was to play an important role in improved compliance with the regulatory framework and functioning of the WWT plants.
Ministry of Water and Environment (MWE)	MWE, which is tasked with the sound management and sustainable utilization of Uganda's natural resources, had an advisory role in developing institutional frameworks for integrated waste management and establishing policy regulations governing renewable energy from biogas technology from sewage sludge and MSW feedstock. It was to also provide advice on the reuse and recycling of products in order to safeguard the environment.
Ministry of Local Government (MOLG)	MOLG is the main institution responsible for spearheading decentralization in Uganda. The Ministry was to help coordinate project activities with the municipal local governments, ensuring that legal requirements are addressed and quality services are delivered within the development plans in a coordinated and cost effective manner.
Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)	MAAIF's involvement in the project was limited to an advisory role linked to the quality and quantity of bio- slurry and by- products from biogas production that is useful for agricultural production.
Kampala City Council Authority (KCCA) and District	KCCA is responsible for waste management within the Kampala City boundaries. The project was to coordinate with KCCA and other local governments in the development of waste management guidelines and regulatory frameworks, awareness creation, and private sector partnerships based on its experience in existing waste management projects. KCCA and the private sector investor in KCCA's new dump site were to be dually responsible for the operation of the demonstration biogas plant under the project.
Municipal Local Governments	Municipal Governments throughout Uganda were to receive a variety of project outputs such as capacity building, information dissemination. In particular, under Component 1, Jinja, Mbale, Mbarara, Gulu, Masaka were to receive technical assistance to prepare IWM plans that integrate MSW- based biogas for energy and technical assistance to introduce tipping/ off taker fees. In year 3 and 4 of implementation these municipalities were to be assisted to prepare a pipeline of biogas projects and access finance and formulate PPPs for project development.
Uganda National Biogas Alliance (UNBA)	UNBA currently has four associations (Eastern Ugandan Biogas Association (EUBA), Western Ugandan Biogas Association (WUBA), Interregional Biogas Association (IRBA) and the Ugandan Biogas Association (UBA) (and currently in the process of establishing a regional association in the North of Uganda) representing over 160 members. UNBA represents a comprehensive network with a committed leadership structure within the umbrella and the regional associations. Members include enterprises, engineers and dealers from the domestic as well as the institutional and commercial sector. Many members are experts that have professional experience in the African biogas sector for up to 30 years, working as consultants and advisors.
Uganda Energy Credit Capitalization Company (UECCC)	UECCC's mandate is to facilitate investments in Uganda's renewable energy sector by pooling resources from the government, investors and development partners. It provides credit support for private sector led renewable energy infrastructure development. Among the services that it provides, UECCC can provide capacity building for IPPs and financial institutions.

Stakeholder	Role
Uganda Investment Authority	The Uganda Investment Authority is a semi- autonomous government agency which drives national economic growth and development in partnership with the private sector. As an investment promotion agency, UIA mainly: markets investment opportunities; promotes packaged investment projects; ensures local and foreign investors have access to information, especially about the business environment so as to make more informed business decisions; and offers business support, advisory and advocacy services. Their involvement was to entail promoting waste to- energy technology to investors, with demonstrated potential in the pilot municipalities.
Local Financial Institutions	Local banks, such as Finance Trust Bank (FTB), have ventured into the energy sector by collaborating with Uganda Energy Credit Capitalization Company (UECCC) to provide solar energy loans. The project was to provide technical assistance to banks to assess loan applications for MSW based biogas systems.
Private Sector Foundation Uganda (PSFU)	The vision of the foundation, which is made up of 175 business associations, is to be the lead national partner in private sector development. It was to be involved in developing and carrying out effective policy advocacy activities on behalf of the private sector on issues related to business development in the project, especially, investment opportunities and operations and maintenance of the integrated waste management systems established under the project.
Ministry of Finance, Planning and Economic Development	The Ministry of Finance, Planning and Economic Development's mission is to formulate sound economic policies, maximise revenue mobilization, and ensure efficient allocation and accountability for public resources. The Ministry was to be engaged through Component 1 in particular during the design and submission of proposals for financial incentives such as tax breaks for biogas equipment.
Ministry of Gender, Labour and Social Development	The mandate of the Ministry of Gender, Labour and Social Development is to empower communities to harness their potential through skills development, labour productivity and cultural growth for sustainable and gender responsive development. The Ministry was to be engaged in Component 1 on issues concerning labour, gender and social development in regards to waste management. In particular, input from the Ministry were to be requested regarding issues of informal waste pickers.
Waste Pickers Alliance Uganda	The alliance seeks to address the poor working conditions, poor earnings and lack of legal protection of waste pickers. It aims to increase waste pickers' earnings for a decent livelihood, by removing the middlemen, and to train them on savings and cooperative organizing, with a view to eventually integrating them into the formal economy. The waste Pickers Alliance Uganda was to be engaged throughout the project implementation to ensure positive social impacts for waste pickers and in order to avoid negative impacts from the projects activities.

2.7 Theory of Change

The theory of change of the project relies on the time tested concept of removal of barriers through successful demonstration, followed by dissemination and facilitation (by support financing) to enable replication, particularly by private sector investment.

Different planned outcomes of the project under its different components has been designed accordingly.

The figure below depicts the 'Theory of Change' of the project.

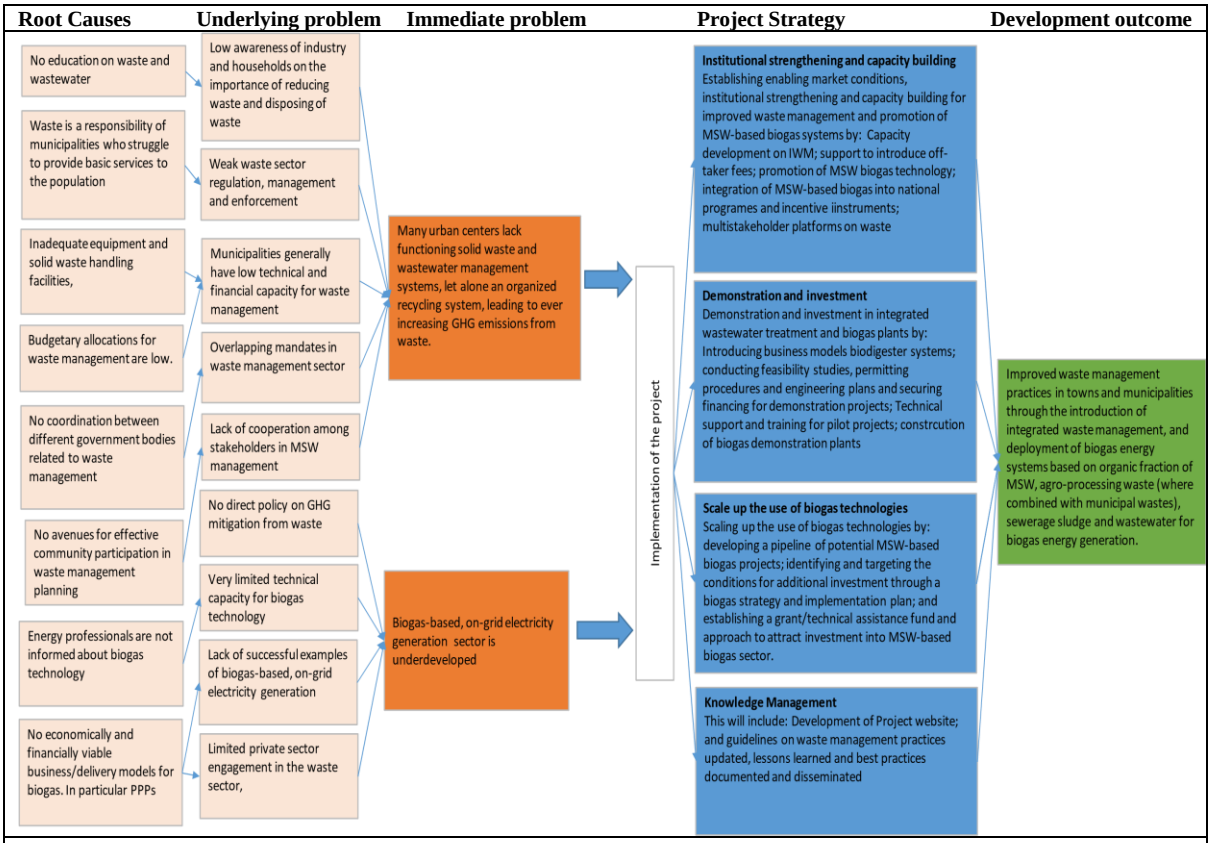


Figure 1: Theory of Change diagram for the project

Source: Project Document

The project's theory of change as presented in the above figure, describes the barriers to a functioning market as well as the interventions under the project to remove those barriers.

The interventions under the project aimed to increase the institutional and technical capacities of the selected municipalities for effective management of municipal waste and wastewater. The project was to provide targeted municipalities with the necessary technical assistance to introduce disposal/off-taker fees for waste disposal. To promote MSW biogas technology among municipalities, project developers, industry and the general public a sensitization campaign was to be conducted on the importance of sustainable waste management in general and on the benefits of MSW biogas technology in particular.

One of the components of the project focuses on demonstration and investment, to address barriers related to technical and financial feasibility as well as reconcile the fact that there are currently no feasible delivery models and PPPs for MSW- based biogas plants in operation. The idea of this component of the project was to establish business models and demonstrate the technical, commercial, and financial feasibility of the waste-to-biogas concept.

The theory of change assumes that following up on the successful demonstration of the waste to biogas technology there will be an opportunity to scale up and replicate the concept across the country. The project design has provided for the facilitation of the scaling up and replication through the establishment of a grant and technical assistance fund.

2.8 Key partners involved in the project

Details of the key partners involved in the project are as follows;

Funding Agency	GEF
GEF Executing Agency:	UNDP
Project Implementing Partner	Ministry of Energy and Mineral Development
Other Partners involved:	Ministry of Water and Environment, Ministry of Local Government, Ministry of Lands Housing and Urban Development, Ministry of Finance Planning and Economic Development, NWSC, Electricity Regulatory Authority, Climate Change Unit – Ministry of Water and Environment

3. FINDINGS: PROJECT DESIGN AND FORMULATION

The main questions for terminal evaluation are; (please see Annex B)

- **Were the project's objectives and components clear, practicable, and feasible within its time frame?**
- **Were the capacities of the executing institution(s) and its counterparts properly considered when the project was designed?**
- **Were lessons from other relevant projects properly incorporated in the project design?**
- **Were the partnership arrangements properly identified and roles and responsibilities negotiated prior to project approval?**
- **Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place at project entry?**
- **Were the project assumptions and risks well-articulated in the PIF and project document?**
- **Whether the planned outcomes were "SMART"?**

3.1 Analysis of Results Framework

The log-frame of the project providing the objectives, the expected outcomes, and results along with corresponding indicators was presented in an earlier section of this report (please see Table 8). No changes in the log frame of the project were carried out at the time of project inception and at the time of MTR of the project.

Some of the issues with the project design and the results framework of the project are as follows:

a. At the time of project design, the ex-ante assessment of the direct GHG emission reduction due to the project has considered avoidance of CO2 emissions due to the generation of electricity using biogas (a renewable source of energy). While computing the potential reduction in the GHG emissions the nameplate electricity generation capacity of the power plant has been considered. It needs to be appreciated that in the overall process of generation of biogas from the waste, a significant quantum of electricity generated would get used as auxiliary power due to which the quantum of net electricity supplied would be much less. It is the potential RE-based net electricity generation that needs to be considered while computing the GHG emission reduction.

b. At the time of project design, the ex-ante assessment of the direct GHG emission reduction due to the project has considered avoidance of CH4 emissions due to the decay of the organic part of the waste. While computing the potential reduction in the emission of CH4, it has been considered that in the absence of the project (baseline situation) the entire quantum of CH4 being produced in the biogas plant would have been generated and emitted to the atmosphere. It needs to be appreciated that in the baseline method of disposal (or non-disposal) of waste the decay of the matter happens in part anaerobic and part aerobic conditions leading to the emission of CH4 and CO2 respectively. The ratio of the emission of CH4 and CO2 would largely depend on the degree of aeration at the dumpsite of the solid waste (lagoon in case of wastewater). Also, some of the carbon content of the waste stream would go to the soil as soil carbon. There are organic matter decay models available that provide a better assessment of the emission of methane from the waste.

c. The project design has provided for the use of the biogas generated in the pilot projects for electricity generation, accordingly, the indicator and the target for Outcome 2 is in terms of capacity created for the generation of electricity. Also, the targets for indicator 4 are in terms of the quantum of electricity generated. As the idea of the project is the gainful utilization of the waste for biogas generation and use it as a source of energy, it would have provided flexibility in case the indicator and the targets would have been set in terms of quantum of biogas (with set calorific value). Such a provision would have provided flexibility in terms of the other end use of the biogas e.g., for steam/heat applications.

d. For Outcome 2 of the project (establishment of pilot projects), the project design has pre-identified the three pilot projects. However, the issue is that the two pre-identified pilot project (Kakira Sugar and NWSC) activities were either at advanced stages of implementation or were already commissioned before the start date of the GEF project being evaluated. Thus, these two waste-to-biogas plants cannot be considered as contributions by the GEF project being evaluated. However, it was good to take these two projects on board and learn from them and also use the experience for training capacity building, etc. For example, the alcohol production distillery (along with the treatment of distillery waste product to produce biogas) was commissioned on 23 January 2017, whereas the start date of the NAMA project is 13 September 2018. Similarly, the investment decision for the waste water-based biogas plant of NWSC was taken much before[12] the start date of the NAMA project. It is particularly not desirable to consider any GHG emission reduction in these two biogas projects as direct GHG emission reductions by the GEF project. One of the other issues with the biogas/electricity project of NWSC is that it has very high auxiliary power consumption.

e. For the third proposed pilot project, at the Kampala landfill site, it was assumed that the results of the feasibility study would be positive and it would be possible to get the investment for the project. Also, the assumption was that it would be possible to complete all the sequential steps of the feasibility study, site selection, getting approvals, investment decisions, detailed engineering, construction, procurement, and commissioning within the implementation timelines of the NAMA project. Given the scale of the investment, this assumption was not realistic. Further, there were no plans in the project design regarding how to approach potential private-sector investors.

f. Although the project design has provided for the outputs for different planned outcomes of the project, the outputs have not been included in the results framework of the project. The absence of the outputs in the results framework has missed the opportunity to monitor the progress of different outputs of the project and report it in the periodic monitoring reports (e.g., in the PIRs).

g. Activities 4.3.2 (Development of standardized baselines for calculating Emissions reductions from Biogas) and Activity 4.3.3 (Registration of project on UNFCCC NAMA Registry), lack objectives in the overall context of the NAMA project. For example, the project design has not clarified the role these activities would play in achieving the objective of the project or in the larger context of resolving the issues with waste management in the country. The concept of 'Standardised Baseline (SBL)' is typically used for getting the benefits of carbon credits for GHG mitigation projects under market-based mechanisms (e.g. CDM projects), however, technically they can also be used for other GHG mitigation projects and programs. As regards registering the project as a NAMA project, it needs to be appreciated that the idea of registering a given project as NAMA is largely to attract funding from the development agencies. This was not the case for the project being evaluated. There is a mix-up of the steps required for implementing NAMA projects and the CDM projects. The project design is not clear how NAMA and the standardized baseline would help in the replication of the biogas from waste plants.

The indicators used in the results framework were SMART[13] except for the fact that the targeted GHG emission reductions were ambitious and difficult to achieve (as explained in the bullet points above). The project objectives and the four outcomes of the project were clear, predictable, and feasible within the implementation timeframe of the project. The Outcomes were predictable meaning that the activities specified in the 'Project Design' were leading to the desired Outcomes of the project.

[12] As per the Annual Report of NWSC 2018-19, "the construction contract was signed on 3rd November 2011. The initial site was located within the Nakivubo swamp. However, upon commencement of the work, the site conditions proved unsuitable. The project was therefore relocated to Bugolobi in Jan 2014. The overall progress was at 98% as at 30 June 2019.

[13] SMART = specific, measurable, achievable, relevant, and time-bound indicators

3.2 Assumptions and Risks

During the project development stage, possible risks toward smooth implementation of the project were identified and risk mitigation measures were proposed. Different risks that were identified during the project formulation and the recommended mitigation measures are provided in Table 11.

Table 11: Risk Analysis of the Project (as per Project Document)

Description	Impact & Probability	Mitigation Measures
Lack of investor appetite: A number of factors may hinder investor interest in MSW- based biogas energy projects including: • Perceived risks of a commercial approach including PPPs for waste management and biogas. • High operational and financial risks. • Lack of guaranteed revenues on non-electricity products. • Limited successful examples.	Moderate	The project will explain the benefits and value chain of MSW- based biogas plants, different business models and PPPs. The project will engage key financial sector players, notably the Uganda Investment Authority, Private Sector Foundation Uganda, the Uganda Energy Credit Capitalization Company, commercial banks and IFIs. The project will work closely with potential PPP stakeholders, building their knowledge of technology and business models and providing technical assistance to assess feasibility and finance options under the Activities of Components 2 and 3. Furthermore, the Ugandan Government is committed to increasing private sector participation in the waste sector. Under component three, the project will assist private project developers to access finance under financial mechanisms such as grants and guarantees – increasing the financial attractiveness and decreasing risks from project finance. The Grant and Technical Assistance Fund developed under Output 3.3 will leverage private sector investment and lending from IFIs and local FIs. The project also facilitates access to available guarantee schemes from SIDA and UECCC that would also help to facilitate financial closure. By developing knowledge, capacity and proposing business models for MSW- based biogas plants alongside technical assistance and grants, the project will remove access to finance barriers.
Feedstock risk: In Uganda, the municipal sector, and to a lesser extent the agro-processing sector, has been slow to adopt new technologies to address waste management. Furthermore, in the absence of examples of MSW- based biogas, investment costs are high and often seen as risky. Therefore, the waste sector in Uganda requires incentives or enforcement to attract investors in waste management and biogas technologies – which will allow for separation of waste sources.	Moderate	Risks will be mitigated by technical assistance activities supporting the development and strengthening the capacities and regulatory framework of the waste management sector in Uganda. Under Component 1, the Project will support MLHUD to develop the National Waste Management Strategy and IWM enforcement strategies by submitting proposals and providing updates and recommendations for inclusion of waste- to- energy considerations. Experts will also assist councils update local municipal ordinances in line with the National Waste Management Strategy and IWM enforcement strategies. Risks are further mitigated through Output 1.5, whereby multiple stakeholders take on responsibility for addressing waste through the establishment of a multi- stakeholder platform on waste management and biogas. A lack of financial incentives will be mitigated through Output 1.4 that will introduce incentives into the national policy, legal and regulatory environment to promote increased uptake of IWM and biogas technology. These measures will aim to reduce the financial risks for investors and ensure bankable projects.

Description	Impact & Probability	Mitigation Measures
Environment/ climate risk: Environmental factors, including the effects of climate change such as drought and other factors) could lead to a loss of feedstock and delay or abandonment of MSW- based biogas projects.	Low	This is an external risk to the project that will be mitigated in the context of a variety of other activities such as; Uganda enacting the National Drought Policy; the Strategy for Enhancing Communities' Resilience to Drought; strengthening the institutional framework, resource mobilization and allocation as well as measures to ensure balance between emergency response and long- term development. Loss of feedstock due to drought and other factors will be considered as part of the feasibility studies for the biogas digesters, which will use conservative assumptions regarding the minimum amount of waste effluent feedstock that will be needed to operate on a commercial basis and the risk of an interruption in supply because of drought-related factors.
Environment/ operational risk: Negative environmental impacts of the biogas pilots could lead to a delay or abandonment of MSW- based biogas projects.	Low	Local environmental factors will be assessed during the feasibility and commissioning phase of MSW- based biogas sites. Principal risks include contamination of aquifers, nuisance, odours, health risks and animal diseases. A due diligence project development process, monitoring of operations, and active intervention if needed are foreseen to ensure operation will be within established parameters and in compliance with the applicable regulations. The impact of biogas energy systems mainly involves safety aspects related to the collection and piping of the combustible gas. Where bio digesters are planned, these bring along transport of organic material and some additional space for handling. These effects are negligible at the scale of a large, integrated MSW treatment facility. The GEF project will prepare the environmental, safety, and social studies and paragraphs applicable to the biogas energy projects as required for the permitting process.
Environmental risk: The Project may potentially result in the release of pollutants to the environment due to routine or non- routine circumstances with the potential for adverse local, regional, and/or transboundary impacts.	Moderate	During Project preparation, similar Project activities have been visited by the team of experts to evaluate the risks. During Project implementation, this level of risk is likely to be moderate if specific training is provided to personnel and a systematic M&E plan is implemented to include the use of devices where appropriate and indicators to identify pollutants due to routine practices. Similarly, no routine circumstances will need to be addressed within an Emergency Plan to coordinate the rapid response in the plant to prevent the impact due to these pollutants. Additionally, to ensure all potential pollutants are identified and assessed an Environmental Impact Assessment specific to each implementation site will study this potential risk at both Project preparation and implementation and provide the pertinent measures to minimize it. Subsequently, an autonomous Environmental Management Plan will establish how, who, when, and where the measures will be managed including the cost of implementation. The plan will be designed by Project goals and especially with the social and gender safeguards identified along the Project. The Environmental Impact Assessment and Environmental Management Plan will be developed as part of a comprehensive ESIA / ESMP.

Description	Impact & Probability	Mitigation Measures
Social risk: The Project may not give local communities or individuals the opportunity to raise human rights concerns regarding the Project during the stakeholder engagement process.	Moderate	A stakeholder platform will be established to be representative vertically (i.e. are all the groups affected well represented) and horizontally (i.e. weight of voice within platform), appropriate channels of communication will be provided for each represented group (i.e. in particular for the informal sector that may be illiterate), and will be provided with an active role throughout all phases of the Project (i.e. from the design to M&E). For that a consultation and communication plan will be prepared and implemented at the investment preparation phase as well as the implementation phase to clearly disseminate information and gather feedback in time regarding the needs and priorities of all stakeholders. All sessions and communication modes will be offered also in local languages and follow the customs and norms of local communities. For that the implementation tools elaborated in 2013 at the REDD+ program in Uganda will be used. The mechanism includes components: (i) Consultation and Participation Plan; (ii) Communication Strategy; (iii) Conflicts and Grievances Management Strategy, and (iv) Mainstreaming Gender Considerations in Uganda's Process. This will be required for each site in the Project which will address the specific risks. For example, through a public log in the Project areas that will be available to local communities and individuals to gather and resolve their concerns.
Social risk: The Project would potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits.	Moderate	The Project preparation team included a dedicated gender expert, with gender- related expertise, local knowledge, and experience. A Gender Assessment by the local gender expert will be carried out specific to each implementation site as part of a comprehensive ESIA / ESMP during Project preparation with women's groups involved in waste management and their participation will be targeted and enhanced in the Project design. The following activities will be undertaken or implemented to ensure that proposed strategies are non- discriminatory and empowering for women, men and other vulnerable social groups: • Identify constraints to women's and vulnerable social groups' participation and develop strategies to minimize the constraints and enhance their participation; • Develop a strategy for skills building and training needs related to women and vulnerable social groups participation in the Project; • Positive discrimination and/or reservations for women's • participation at specific phases of the Project (as promoters or guides of resource separation); • Project management structures will include provision for women (1/3) in such committees; and Gender specific outputs and indicators will be incorporated. Subsequently autonomous Gender Management Plan will establish how, who, when, and where the measures will be managed including the cost of implementation. The plan will be designed in accordance with the environmental and social safeguards identified along the Project.

Description	Impact & Probability	Mitigation Measures
Technical/ operational risk: Energy production from MSW- based biogas has been proven in other country situations to be a technically and economically feasible solution. However, high- tech biogas technology is unfamiliar in Uganda, there is a lack of successful examples, and there is limited capacity to manage high- end biogas systems. Technical failures, either due to equipment failure or poor installation, poor operational management, and maintenance lead to a loss of trust in the performance of biogas technology.	High	The project intends to utilize proven, feasible, and affordable biogas technologies and duplicate solutions successfully introduced in countries with developed biogas sectors (with adaptation to local conditions). To mitigate risks of limited technical capacity, sufficient capacity will be created to ensure the sound operation of biogas digesters. Technical support and training programs for technical staff for pilot sites and preparation of manuals and procedures under Output 2.3 will develop sufficient capacity for adequate operation of biogas digesters. Issues that may affect operation include feedstock composition and contamination (plastics), traces of inhibitors and toxic substances (such as heavy metals), and temperature control. Mitigation measures under 2.3 including monitoring and optimisation of operational procedures and technical performance of pilot plants as well as ensuring adequate process controls regarding plant operation and feedstock sorting processes will be introduced as part of project preparation and where necessary corrective actions will be taken. This is particularly the case where digestate will be used as a by- product such as soil conditioner Monitoring and optimisation of operational procedures will provide lessons for the replication of biogas technology for MSW in Uganda. Due to the high level of risk of technical failure, the project employs additional risk mitigation measures. Measures include: i) the technical backstopping activities provided by the Waste and Biogas expert; and ii) technology providers/contractors shall include a training program for operators in their offers, as well as extensive after- sales services and provisions for technical failure to be delivered under Output 2.5.
Construction risk: Construction and operation of biogas plants pose a range of safety issues, potential risks, and hazards for humans, animals, and the environment	High	Appropriate precautions and safety measures will be taken to avoid related risks and hazardous situations and ensure the safe operation of the proposed biogas plants. Training of biogas plant construction and operating personnel will be aligned with the Government's occupational health and safety regulations and international best practices in the biogas sector. Training provided to operators by contractors under Output 2.5 will include a specific module on health and safety in the workplace. The National Environment Act (Cap 153), Section 20 EIA Regulations S.I. No. 13/1998 requires construction projects such as biogas plants to undergo an individual Environmental Impact Assessment before their implementation. The National social and environmental expert will prepare the environmental, safety, and social studies and paragraphs applicable to the biogas energy projects as required for the permitting process.
Management risk: The Implementing Partner (MEMD) would lack the managerial and technical capacity to implement the Project.	Low	The MEMD has ample experience executing programs financed by multilateral agencies (World Bank) and is familiar with reporting procedures, audits, and evaluations as required by multilateral agencies. The Ministry also has specific experience with UNDP and the GEF.
Political risk: In the face of competing priorities, the political will to comprehensively address waste management may not be sustained.	Low	The broad engagement of stakeholders through the NAMA identification process has ensured the ownership and commitment of lead government agencies. The stakeholder- driven process has naturally selected the most engaged and committed stakeholders to develop the NAMA.

Apart from the risks identified in the project document, the PIF mentions some additional risks, financial risks, and lack of information/data about the potential feedstock for the biogas plants.

The financial risk identified at PIF was that the potential Project owners and local financial institutions may not be willing to invest in biogas technology due to a lack of a proven commercial approach. To mitigate this risk the project planned to engage closely with key financial sector players, notably the

Uganda Investment Authority, Private Sector Foundation Uganda, the Uganda Energy Credit Capitalization Company, the Credit Support Facility under MEMD, and commercial banks. This risk could not be adequately addressed at the stage of project design. This is one of the identified risks that come to the forefront during implementation of the project, the due to high capital cost (as was found after the feasibility study under the project) of the proposed biogas facility at KCCA. This is one of the reasons due to which the performance of the NAMA project suffered.

3.3 Lessons from other relevant projects[14]

As mentioned in the project document, at the time of project design, some development projects were being implemented in Uganda in the area of waste management and the area of renewable energy. However, none of these projects involved biogas technology. As per the project document, in Uganda, as in the rest of East Africa, biogas technologies are largely found at the household level (low- tech). At the time of project design, there were fewer than 10 examples of large-scale (high- tech) biogas installations in East Africa. Most of these installations, but not all cases, were linked to some form of international assistance. In Uganda, there is very limited experience with anaerobic digestion of the organic fraction of MSW.

Following are some of the relevant baseline projects in Uganda;

- **NEMA CDM Composting Project**: Recognizing the magnitude and urgency of the waste management challenge, the National Environment Management Authority (NEMA) initiated the Uganda municipal solid waste composting project in 2005, with the primary aim of improving the management of municipal solid waste by turning the biodegradable portion of the waste into compost manure for agricultural use through a cooperation agreement with 17 municipalities in the country. The project was registered in April 2010 as a Clean Development Mechanism (CDM), 'Program of Activity' (PoA) project. Solid waste compost plants with an optimum capacity of 70 metric tons per day were constructed in 12 municipalities. At the PIF stage, the composting project was envisaged as the primary baseline initiative of the UNDP- GEF project. Research during project preparation revealed some issues at the composting sites. For example, (i) demand for compost seems low; (ii) there was no pre- sorting of organic material before reaching the site and thus the manual labor required to run such a system will likely be uneconomical. These lessons were considered while designing the NAMA project.

- **Promotion of Renewable Energy and Energy Efficiency Programme (PREEP)**: PREEP was commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) to support MEMD over the period 1999- 2017. PREEP supported the renewable energy and energy efficiency private sector landscape in Uganda.

- **Kampala Sanitation Program:** The National Water and Sewerage Corporation (NWSC), assisted by the African Development Bank and KfW developed the Kampala Sanitation Program including the construction and operation of the Nakivubo Waste Water Treatment Plant.

- **Kampala Capital City Authority and IFC Integrated Solid Waste Management Project in Kampala**: IFC provided advisory services to the Kampala Capital City Authority for the implementation of an integrated solid waste management project in Kampala, which was to include; Waste collection; Recycling, and composting; Landfill operations and closure of the existing landfill; Construction and subsequent operations of a new landfill, Beneficial use of landfill methane for generation of electricity and potential generation of carbon credits.

[14] Based on the information in the Project Document

Although the above projects are mentioned in the project document, it is not clear how the lessons learned from these projects were incorporated into the design of the NAMA project being evaluated.

3.4 Planned Stakeholder Participation

In an earlier section of the report (please see section 2.6) the roles of the important stakeholders of the project were highlighted. There are provisions in the project design to implement the mechanisms to ensure effective participation by the stakeholders. As per the plan, the commencement of the Project was to happen with an inception meeting in which all the important stakeholders were to participate and contribute.

The project design has provided for the establishment of a multi- stakeholder platform on waste management and biogas wherein it is planned that the stakeholders will take on joint responsibility. The project design has provided for consultation sessions which include outreach efforts tailored to the needs of vulnerable groups, particularly women, so that the process is socially inclusive and a range of stakeholder views and perspectives are adequately represented. At the national level, the project provided for a stakeholder consultation process that included the inception workshop, validation workshop, and other bilateral meetings.

At the local/ investment site level, the project planned to engage the stakeholders through UNDP's standard stakeholder engagement processes, which included consultation through an Environmental Impact Assessment, and Environmental and Social Action Plan (ESAP).

The Project planned to work closely with relevant authorities the Waste Pickers groups and other local civil society organizations (CSOs) (for example, market management committees) to identify ways of improving working conditions and earnings, with a particular focus on women to set specific indicators and targets related to gender equality.

3.5 Replication approach

One of the goals of the project is to put in place an enabling environment and scaled-up implementation of waste-to-energy facilities using biogas technology. Provision has been made in the project design for the replication of waste to energy-based electricity generation facilities using biogas technology.

For replication, the project design has relied on successful demonstration of the pilot projects, followed up with the delivery of Knowledge Management and Monitoring and Evaluation products. The knowledge management strategy for the project included a wider communication and dissemination of project lessons and experiences to support the replication and scaling- up of project results.

To support the replication, the project design, apart from the successful demonstration of the pilots, has provided fiscal concessions for the establishment of waste-to-energy plants based on biogas technology with the establishment of a grant/technical assistance fund to support investment for the waste-based biogas to electricity generation facilities.

Outcome 3 of the project, supports the scaling-up and expansion of the project to other municipalities within Uganda. It also includes a structured replication Programme to replicate success in the pilot cities to other cities. The Outputs under Outcome 4 have provided for developing and documenting the lessons and benefits of waste-based electricity generation using biogas technology, followed by dissemination. This is targeted at promoting the replications.

Thus, the project has provided for a bottom-up approach within the overall policy/investment framework that is envisaged to be developed under the project, to promote waste-to-energy projects using biogas technology.

3.6 Gender responsiveness in project design

The project has been given a gender marker score of 'GEN2: gender equality as a significant objective.' A range of key gender issues were identified at the time of project design. The project design has recognized that substantial organic waste is likely to come from selected urban area markets, where women are the major dealers in agro- crop products. The other sources of waste are the households where women control the disposal process and practices.

The gender mainstreaming strategy of the project comprised gender representation, engagement, and responsiveness. The project design provided for special assistance programs or interventions for at least three women and other vulnerable social groups.

The project design has realized the importance of gender mainstreaming in the waste management sector. Accordingly, the project design sought to achieve gender equality through the empowerment of women. However, when it comes to gender responsiveness in the project design, one of the issues is that there are no gender-segregated indicators in the results framework of the project. Further, there are no gender-segregated or gender-specific activities and targets at the output and activity level of the overall project design.

3.7 Management arrangements

The project has been implemented using the 'National Implementation Modality (NIM)' of UNDP with the Ministry of Energy and Mineral Development, as the lead implementation partner. UNDP was responsible for the disbursement of funds and the achievement of the project goals, according to the approved work plan.

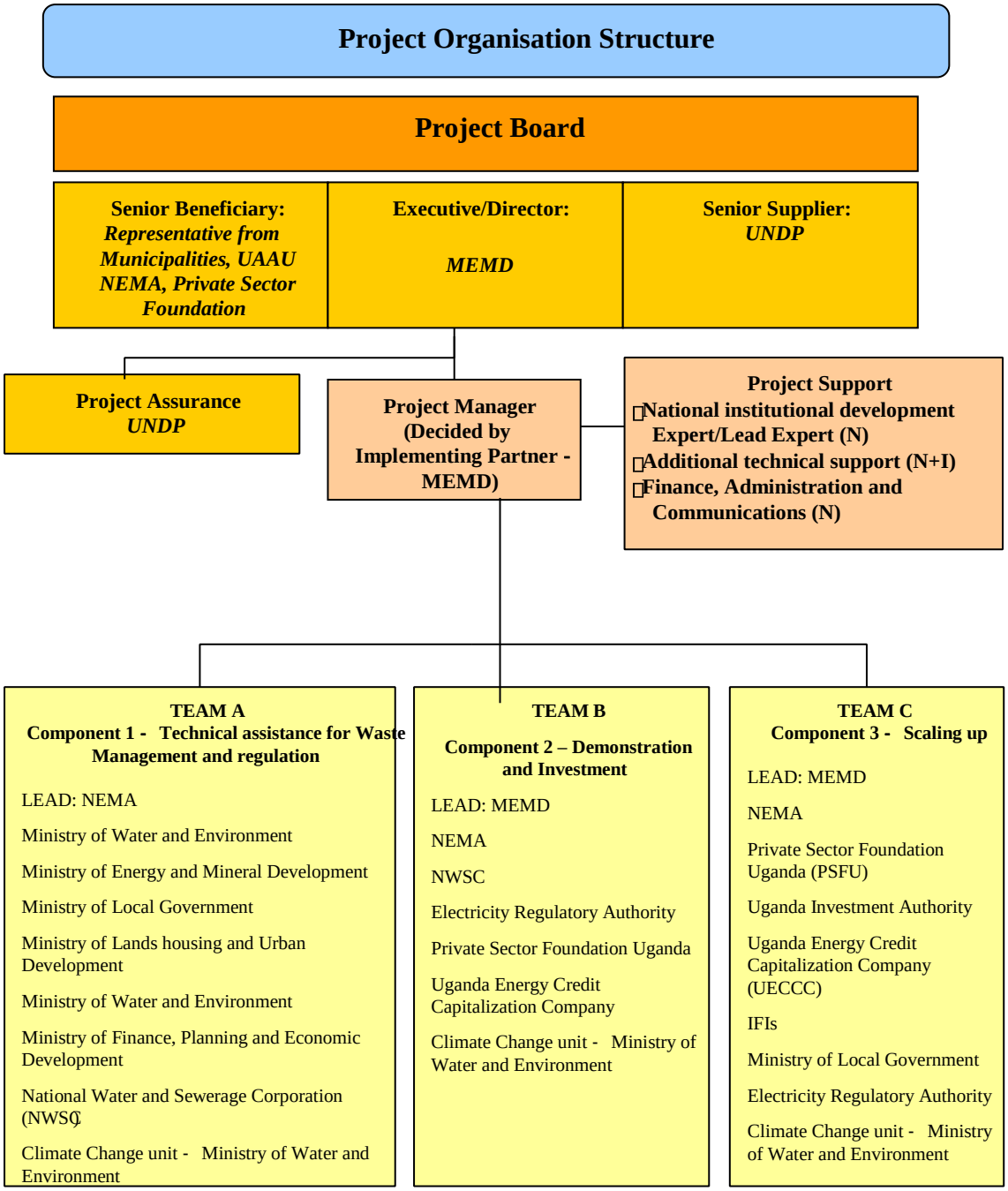
A Project Board (PB) was to be established at the inception of the project to monitor project progress, guide project implementation, and support the project in achieving its listed outputs and outcomes.

The day-to-day management of the project was to be carried out by the Project Management Unit (PMU) under the overall guidance of the PB. The PMU was to be established within the Ministry of Energy and Mineral Development. The Ministry was to coordinate its work with UNDP and other government and non-government stakeholders. The National Project Manager will report to the ministry and the PB.

The national project manager was to participate in the PB, as a non-voting member and was also responsible for sharing required documents sufficiently in advance of the meeting and compiling a summary report of the discussions and conclusions of each meeting.

The implementation partner lead representative was to coordinate project operations and support the NPM with overall administration, oversight, coordination of activities, and maintaining a liaison with UNDP. UNDP was to maintain the oversight and management of the overall project budget. It was responsible for monitoring project implementation, timely reporting the progress to the UNDP Regional Centre and the GEF, as well as organizing mandatory and possible complementary reviews and evaluations on an as-needed basis.

The figure below provides the details of the implementation arrangements for the project.



4. FINDINGS: PROJECT IMPLEMENTATION

4.1 Adaptive management and Feedback from M&E used for adaptive management

The main questions for terminal evaluation are; (please see B)

- **Did the project undergo significant changes as a result of recommendations from the mid-term review? Or as a result of other review procedures? Explain the process and implications.**
- **If the changes were extensive, did they materially change the expected project outcomes?**
- **Were the project changes articulated in writing and then considered and approved by the project board?**
- **Whether feedback from M&E activities was used for adaptive management?**
- **Whether changes were made to project implementation as a result of the MTR recommendations?**

The Project document was signed on 23 September 2018 (the start date of the project). However, the inception meeting of the project happened in February 2019. The Project was formally launched on 18 May 2019. As is evident, the project suffered a delayed start. Whereas the project inception meeting was held in February 2019, the project inception meetings in different project cities were organized in November and December 2019 (with more than six months delay). The signing of memoranda of understanding between the lead implementation partners (MEMD) and other implementation partners (NEMA and city authorities) could happen only in August 2020 (about 12 months after the project approval). This undoubtedly delayed the implementation of project activities and progress towards different outcomes.

At the time of the inception of the project in Feb 2019, for component 1 of the project, a change was made in the mode of implementation of different activities. It was agreed that the NEMA would perform the role and duties of the lead institutional expert and the environmental expert (instead of international consultants as provided in the project design). The argument was that the required expertise is available within NEMA or there is no need to hire international consultants. The process of change in the implementation method (as requested by the implementation partner) wherein international and national consultants were removed from component 1 for which NEMA is the Responsible Partner took time, which further delayed the implementation of the project.

One of the minor changes that was suggested at the time of project inception was the text of one of the indicators. However, the suggested change was very minor and did not materialize for the implementation of the project.

With the project manager and the other staff coming on board in July, the PMU was constituted. One of the reasons for the delay in hiring the project manager was the change in the terms of reference wherein under the changed scheme of things it was decided to go for the project manager who has technical competencies.

Due to the restrictions imposed by COVID-19, as an adaptive measure some of the planned trainings were conducted online while some of the trainings were postponed for a later date.

The Project's independent Mid-Term Review (MTR) was completed in June 2022 (much delayed). The MTR recommended several actions to make a better link between the project outcome and impact and to boost the delivery of project results. One of the recommendations at MTR was to change the target value of the core indicator, and direct GHG emission reductions to a realistic and achievable level. However, this recommendation did not materialize as for the GEF projects, downward revision of the core indicators during project implementation is not allowed. Table 12 provides the details of the recommendations at MTR and the management response.

Table 12: Recommendations at MTR and Management Response

#	MTR Recommendation	Management Response	Key Action Required
1	Revise project objective indicator to what can realistically be achieved. Additionally, revise outcome indicator to reflect what can realistically be achieved. Revise indicator for outcome 2 to include use of MSW, wastewater and agricultural waste in waste to energy projects.	Changing this may require approval from GEF RTA advised this is not possible.	Revise project objective indicator, outcome indicator to reflect what can realistically be achieved and revise indicator for outcome 2 to include use of MSW, wastewater and agricultural waste in waste to energy projects. This will be presented to the Project Board at the next meeting in July for their consideration.
2	Explore alternative approaches other than SPVs to bring the private sector to invest in waste-to-energy ventures in Kampala and other cities – for example having a purely private entity to invest in the waste-to-energy plant. However, no waste-to-energy company can be able to break-even with just the income from energy sales. Hence, such companies are premised on the business of treating wastes – a service for which they must be paid. Income from energy sales should be just considered as additional revenue, which can help to reduce the amounts they charge for their services of waste treatment. These could include encouraging the cities to implement the polluter-pays-principle and thus reduce the operational costs of securing MSW.	Agreed	2.1. Engage with private sector on possibilities of pure private sector investment
3	Re-allocate funds for pilot plants to procurement of a demonstration mobile waste separation and sorting trommel machine(s) and equipment for monitoring biogas plant at Nakivubo Wastewater treatment plant NWSC. These mobile trommel could be used to demonstrate recovery of resources from Waste-Integrated waste management approaches since organic waste is used to produce biogas and/or organic fertilizer.	Agreed. This proposal was approved by the Project Board.	Reallocate funds to procurement of a demonstration mobile waste separation and sorting trommel machine, pending approval by the Project Board
4	Re-allocate funds for pilot plants to activities that prepare other cities for private sector investment in waste-to-energy ventures.	Partially agreed. Would be preferable to use the fund to acquire tangible output like equipment	Re-allocate funds for pilot plants to activities that prepare other cities for private sector investment in waste-to-energy ventures. This will be weighed against recommendation 3 and final guidance given by the Project Board
5	Build on political support in the cities to expand work to attract private sector involvement in IWM in the different cities beyond IWM capacity building and	Agreed. Already being done	Continue stakeholders' engagement including regular meetings of the GKMA technical working

#	MTR Recommendation	Management Response	Key Action Required
	awareness creation activities.		group and multi-stakeholders' platform meetings
6	Submit a request for a no-cost extension for 18 months to make up for the time lost, as the result of the ~12 months delay to start implementation of project activities and lockdown due to covid19 restrictions.	Rejected. The Project Board meeting decided that it is not necessary to extend the project, as this will incur additional costs related to extending contract of the PMU staff.	PMU should expedite project implementation to ensure timely delivery
7	MEMD and UNDP should work together to ensure timely approval of annual work plans, disbursement of funds and reporting of project outputs and accounting for advanced funds	Agreed	Funds for Q1, 2023 should be released, latest by 15th January 2023
8	Strengthen monitoring and reporting of implementation of project implementation and give more attention to recording and reporting on lessons learned and project achievements. This might require recruitment of an M&E officer as part of the PMU or hiring a national consultant for the remainder of the implementation. This will help to ensure (1) achievement of socioeconomic results based on responsible environmental management of vulnerable groups, (2) expected outcomes in waste management and conversion to energy from waste, (3) information availability before the terminal evaluation.	Agree on strengthening monitoring and reporting. Disagree on recruitment of M&E officer as there is no sufficient time to do this. Short time consultant may be considered.	Ensure timely reporting
9	Implement recommendations of the gender strategy to ensure that women and men are adequately represented in the IWM activities in the cities.	Agreed	Implement the Gender strategy

As per Mid-year Board Meeting, held on 10 Aug 2022 two independent consultants were recruited by UNDP in June, 2021 to undertake the MTR. Though the assignment was to be concluded by 31st October, 2021, there were significant delays in completion. The draft report was submitted in November, 2021 and presented at the End of Year, 2021 Board meeting. The board did not accept the findings of the MTR and asked for its revision. The Board specifically asked for revision of the recommendations in the Midterm review report. With this the International consultant resigned in February, 2022, and the finalisation of the MTR was left to the National consultant. The final version of the MTR report was completed in July 2022. The reasons for the situation of disagreements with the finding of the draft MTR report are not known, however, to the extent possible such a situation needs to be avoided.

One of the significant changes in the project happened due to recommendation 3 (please see Table 12 above) of the MTR. It is not clear if this recommendation was part of the draft MTR report, however, this recommendation is there in the final version of the MTR report. The recommendation was accepted by the project board and funds were reallocated from funds originally meant for pilot plants, for procurement of demonstration mobile trammel mills for separation of manure. It was decided to go for the trommel machine for sorting of compost at three pilot cities (Jinja, Mukono and Kampala). Due to the quantum of funds and the price of the trommel machines it was not possible to go for the trommel machines in all the five pilot cities. The project procured the three trommel machines. At the time of TE one of these three machines was being commissioned (at Jinja), while the machines at the other two locations was yet to be delivered at site. It is important to note that these trommel machines are to

support the MSW to compost CDM –PoA project (NEMA CDM Composting Project) using windrow based aerobic fermentation technology, which was implemented in Uganda in 2005 (please also see section 3.3). The NEMA CDM project did not perform since its inception, and is presently in bad shape.

The minutes of the board meeting held on 10 August 2022, noted that, "as highlighted in the Midterm review report, the Public Private Partnerships as a means of obtaining co-financing for establishment of biogas to electricity plants would not be realized within the project duration and this would cause low delivery due to non-absorption of funds." The project team proposed provision of trommel machines as one of the ways to utilise the funds, meant for the pilot projects (under outcome 2). As far as utilisation of funds is concerned, the provision of trommel machines improved the performance of the project, however, it did not add to the results of the project as this measure is not supporting any of the project objectives and the project outcomes.

The board also approved provision of monitoring equipment for monitoring for ensuring safe operations of the biogas plant at Nakivubo Wastewater treatment plant of NWSC. However, during implementation of the project these monitoring equipment did not got procured and supplied to the biogas plant. None of the other (other than recommendation 3) recommendations at MTR had an impact on the way the project was being implemented.

One of the changes in the project during its implementation has been establishment of small institutional demonstration biogas plants at the pilot cities of Jinja, Kampala, Masaka, Mbale and Mbarara. - Site assessment and selection was conducted and five sites selected including Masaka SS in Masaka; Kyanja Demonstration Farm at KCCA; Nakaloke SS in Mbale; Jinja College School in Jinja; and Mbarara Junior School in Mbarara City. At the time of the field mission for the TE, the construction of the small demonstration biogas facilities along with the pit type latrines were under construction.

Monitoring and Evaluation activities for the project have been as per the requirements of GEF. PIRs were prepared as per the requirements. No quarterly reports were prepared. The annual progress report got prepared only for two of the implementation years (2022), however, the report is not as per the required format. The proposed demonstration biogas plants are of very small capacity. Although, if commissioned and operated successfully they will contribute towards the objective of the project, but the contribution will be quite small.

As was mentioned before (please see bullet point e. in section 3.1) one of the issues with the results framework is that the outputs for different planned Outcomes has not been includes in the results framework. This significantly reduced the utility of the periodic reporting and the use of feedback from M&E activities for adaptive management.

Except for the adaptive measures of providing trommel mills and small institutional biogas plans (as per the recommendation of the MTR), there is no evidence to suggest the use of feedback from M&E activities for adaptive management of the project.

4.2 Partnership arrangements

The main questions for terminal evaluation are; (please see Annex B)

- **Were there adequate provisions in the project design for consultation with stakeholder?**
- **Whether effective partnerships arrangements were established for implementation of the project with relevant stakeholders involved in the country/region, including the formation of a Project Board?**
- **Whether lessons from other relevant projects incorporated into project implementation**

At the time of its design, the project considered that it will work with a number of local and international partners in order to achieve project impacts. The multi- stakeholder platform which was planned under the project was aimed at helping the project to facilitate the coordination amongst the other similar

ongoing development initiatives for integrated waste management. Section 3.3 provided the details of the other ongoing development initiatives for waste management in Uganda.

Section 3.4 provided the outlines of the planned stakeholders' participation in the implementation of the project. There are provisions in the project design to implement the mechanisms to ensure effective participation by the stakeholders. As per the plan, the commencement of the Project was to happen with an inception meeting in which all the important stakeholders were to participate and contribute. The project design has provided for establishment of a multi- stakeholder platform on waste management and biogas wherein it is planned that the stakeholders will take on joint responsibility. At the local/ investment site level, the project planned to engage the stakeholders through UNDP's standard stakeholder engagement processes, which included consultation through an Environmental Impact Assessment, and Environmental and Social Action Plan (ESAP). As per the provisions in the project design, the project planned to work closely with relevant authorities and the Waste Pickers groups and other local civil society organisations (CSOs) to identify ways of improving working conditions and earnings, with a particular focus on women in order to set specific indicators and targets related to gender equality.

As per the project team, the project went ahead with the partnership arrangements as planned. The main platforms for co-ordination of activities with different partners were the project board, technical working group, thematic group for energy, and the multi-stakeholder platform.

Board meetings was dully constituted and meet regularly with the participation of all the stakeholders. As per the project team partnership arrangements were dully made with different agencies of the national counterparts for the effective implementation of the project. Participation by the NGOs/CBOs, was there in the training and capacity building sessions. There is no evidence to suggest, gender considerations during project implementation and while involving the stakeholders in project implementation.

4.3 Project Finance

The main questions for terminal evaluation are; (please see Annex B)

- **Whether there was sufficient clarity in the reported co-financing to substantiate in-kind and cash co-financing from all listed sources?**
- **What are the reasons for differences in the level of expected and actual co-financing?**
- **To what extent project components supported by external funders were well integrated into the overall project?**
- **What is the effect on project outcomes and/or sustainability from the extent of materialization of co-financing?**
- **Whether there is evidence of additional, leveraged resources that have been committed as a result of the project?**

The planned grant funding for the project and its distribution amongst different components/outcomes of the project is given in Table 13.

Table 13: Project Cost (as per project document) (figures in USD)

Outcome	Fund Source	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
Outcome 1	GEF	21,450	74,400	154,150	0	0	250,000
	UNDP	0	0	0	0	0	0
	Sub Total 1	21,450	74,400	154,150	0	0	250,000
Outcome 2	GEF	80,300	1,045,900	31,000	11,400	11,400	1,180,000
	UNDP	0	0	0	0	0	0
	Sub Total 2	80,300	1,045,900	31,000	11,400	11,400	1,180,000
Outcome 3	GEF	0	34,470	63,870	224,527	175,099	497,965
	UNDP	0	0	0	450,000	450,000	900,000
	Sub Total 3	0	34,470	63,870	674,527	625,099	1,397,965
Outcome 4	GEF	20,586	5,586	40,286	11,236	61,036	138,730

Outcome	Fund Source	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	UNDP	0	0	0	0	0	0
	Sub Total 4	20,586	5,586	40,286	11,236	61,036	138,730
Project Management	GEF	20,667	20,667	20,667	20,667	20,667	103,335
	UNDP	0	0	0	0	0	0
	Sub Total - PM	20,667	20,667	20,667	20,667	20,667	103,335
Total	**GEF**	143,003	1,181,023	309,973.00	267,830	268,201	2,170,030
	UNDP				450,000	450,000	900,000
	Total	143,003	1,181,023	309,973	717,830	718,201	3,070,030

Out of the total approved grant funding of about USD 3.07 million, USD 1.8 million was for procurement of equipment (USD 0.9 million GEF grant under Outcome 2+ USD 0.9 million UNDP under Outcome 3), which is 58% of total grant funds.

The utilisation of the grant funds for the first three years of operations has been quite low. The reason for low utilisation of funds for the initial three years of operations was due to no procurement of any equipment or use of funds for providing grants for purchase of equipment. With the utilisation of funds meant for procurement of equipment the funds utilisation in last two years of project implementation improved considerably.

Table 14 provides the details of the financing and co-financing committed by different agencies at the project design and the actual co-financing realised at the time of Terminal Evaluation.

Table 14: Planned and Actual Co-financing at project design and at TE (figures in USD)

Source of co-financing	Name of co-financier	Type of co-financing	Confirmed at CEO endorsement	Actual amount contributed at TE[15]
GEF Agency	UNDP	Grants	900,000	656,279
Government	MEMD	In-kind	557,000	334,200
	NEMA	In-kind	381,000	266,700
	NWSC[16]	Equity	7,800,000	*15,661,557*
	Jinja city	In-kind	0	474,758
	Masaka city	In-kind	0	62,971
	Mbale City	In-kind	0	233,146
	Mbarara city	In-kind	0	233,146
	KCCA	Equity	2,250,000	623,191
Private sector	Kakira Sugar Ltd[17]	Equity	2,000,000	*4,000,000*
Other stakeholders		Equity	350,000	0
UNCDF		Grants	800,000	0
UNCDF		In-Kind	100,000	0
		Total	**15,138,000**	**2,884,391**

The project could not leverage the co-financing as per the commitments made at the time of CEO endorsement. One of the reasons for the lower realisation of the co-finance is no contribution by the investors in the pilot projects (as the two pilot projects investment in which was considered as co-finance at the time of project design) are not being considered as supported by the NAMA biogas project.

[15] Figures as per MTR report. It was shared by the project team that post MTR there is no further co-financing

[16] The figures reported in the Table are as per the project team. However, no co-finance contribution by NWSC has been considered at TE as its biogas project is not being considered as pilot project of the NAMA project, as this biogas was already at advanced stages of implementation at the start date of the implementation of the NAMA project. Accordingly the figure has not been included in the Total

[17] The figures reported in the Table are as per the project team. However, no co-finance contribution by Kakira Sugar has been considered at TE as its biogas project was commissioned before the start date of the NAMA project. Accordingly the figure has not been included in the Total.

4.4 Monitoring and evaluation: design at entry

The main questions for terminal evaluation are; (please see Annex B)

- **Is the M&E plan well-conceived at the design stage?**
- **Is M&E plan articulated sufficient to monitor results and track progress toward achieving objectives?**
- **Was the M&E plan sufficiently budgeted and funded during project preparation and implementation?**
- **How effective are the monitoring indicators from the project document for measuring progress and performance?**

A monitoring and evaluation plan was put in place at the time of project design. There was a provision to review the plan at the time of project inception. The responsibilities of M&E activities were entrusted to UNDP CO. As per the project document, the M&E activities include approving annual implementation work plans, budget revisions, monitoring progress, identifying problems, suggesting remediating actions, project evaluation etc.

As per the plan, the project was to be monitored through periodic quarterly and annual monitoring. There were provisions for the preparation of APR/PIR. The APR/PIR combines both UNDP and GEF reporting requirements. Provisions were also made in the project design for an independent Mid-Term Review and the Terminal Evaluation. GEF Focal Area Tracking Tools (Core Indicators) were also to be prepared before the MTR and at the TE.

The set of indicators to be monitored and the corresponding targets were provided in the log-frame of the project. As mentioned earlier (please see section 3.1) there are issues with the indictors in terms of achievability. The results of the monitoring and evaluations were to be provided to the project board. The project design has not provided gender-segregated indicators for monitoring and verification of the progress and achievement of the results of the project. The monitoring and verification plan for the project does not have any provision for disaggregated data specific to gender, children, indigenous persons, and other vulnerable sections of society.

The M&E plan at the design stage was well conceived. The plan was well articulated and was sufficient to monitor results and track the progress toward achieving the objectives.

Adequate provisions were made in the budget for monitoring and evaluation activities. **The M&E design at entry is rated**[18] **as Satisfactory**.

4.5 Monitoring and evaluation: implementation

The main questions for terminal evaluation are; (please see Annex B)

- **Whether the logical framework was used during implementation as a management and M&E tool?**
- **What has been the level of compliance with the progress and financial reporting requirements/ schedule, including quality and timeliness of reports?**
- **What has been the effectiveness of the monitoring reports and evidence that these were discussed with stakeholders and project staff?**
- **What is the extent to which follow-up actions, and/ or adaptive management, were taken in response to monitoring reports (APR/PIRs)?**
- **Whether APR/PIR self-evaluation ratings were consistent with the MTR. If not, were these discrepancies identified by the project steering committee and addressed?**

Section 4.4 provided the requirements for monitoring and evaluation as per the design of the project. Evaluation of the actual implementation of the monitoring and evaluation is provided in this section.

[18] Rating Scale Use: Highly Satisfactory (HS): no shortcomings; Satisfactory (S): minor shortcomings; Moderately Satisfactory (MS); Moderately Unsatisfactory (MU): significant shortcomings; Unsatisfactory (U): major problems; Highly Unsatisfactory (HU): severe problems; Not Applicable (N/A); Unable to Assess (U/A)

Evaluation is based on the requirements of monitoring and evaluation, compared to the monitoring and evaluation carried out during the implementation of the project.

Annual PIRs were produced using the set of indicators provided in the log-frame. However, as the results framework did not include output level details, the PIRs did not cover the progress made for the outputs of the project. Project board meetings have been regular.

As the project design has not provided gender-segregated indicators for monitoring and verification of the progress and achievement of the results of the project. Also, the monitoring and verification plan for the project does not have any provision for disaggregated data specific to gender, children, indigenous persons, and other vulnerable sections of society. Thus, at the time of TE, no disaggregated data for the assessment of the performance of the project on the gender aspects and other cross-cutting issues were available.

MTR of the project happened with a time lag. TE of the project is currently under way. APR/PIR self-evaluation ratings were consistent with the MTR.

M&E Plan Implementation has been rated as Satisfactory. The overall quality of M&E is rated as Satisfactory

4.6 UNDP and Implementing Partner implementation operational issues

The main questions for terminal evaluation are; (please see Annex B)

- **Whether there was an appropriate focus on results?**
- **Was there adequate UNDP support to the Implementing Partner and project team?**
- **Quality and timeliness of technical support to the Executing Agency and project team**
- **Were the management inputs and processes, including budgeting and procurement adequate?**

The project has been implemented under NIM by the Ministry of Energy and Mineral Development as the national implementing partner (NIP). A Project Management Unit (PMU) was established to oversee the implementation of the project on a day-to-day basis.

One of the operational issues has been the delay in the approval of the work plans at UNDP and the delays in the provision of funds. During the initial stages of project implementation, the UNDP country office provided overall program, administrative, and financial oversight of the project progress following the common UNDP procedures and tracking tools available in the Atlas system. During the implementation of the project UNDP system migrated from Atlas system to Quantum. Due to issues with the quantum system in the initial stages of its implementation, there were delays in the approvals and funds disbursals.

When it comes to oversight support and ensuring that the project follows the requirements in terms of project inception, preparation of periodic progress reports, work planning, and approval, UNDP has fallen short of the requirements of timely approval.

The quality of UNDP Execution has been rated as Satisfactory. The quality of Implementation by the Implementation Agency is rated as Satisfactory.

4.7 Risk Management

As was mentioned earlier in this report (please see section 3.2), during the project development stage, possible risks towards implementation of the project were identified and risk mitigation measures were proposed.

One of the risk faced during implementation of the project was the restrictions imposed due to COVID 19. The restrictions due to COVID 19 slowed the progress towards the activities involving field work, training and stakeholder consultations. For managing this risk the some of the stakeholder consultations and trainings were organised online by rescheduling the activities involving field work.

During project implementation, the project team identified that environmental and social risks associated with a waste to biogas solutions as high risk in terms of UNDP's social and environmental safeguards and that, consequently, no risk-posing activities (i.e. the building of new biogas plants and the supplying of new MSW or other feedstock to them) can start until management plans are in place. However, this risk did not pose the problems and none of the pilot biogas projects reached the stage of construction.

One of the other risk which was identified during the implementation of the project was issues regarding availability of the organic waste for MSW based biogas facilities due to possible competition for sorted waste feedstock with other secondary uses such as using the sorted waste as compost in local farms. However, the risk was categorised as low, as the present level of collection of waste in the cities is low and the supplies can be increased by promoting the collection of waste.

Another risk identified is Institutional operation in terms of delays in obtaining clearances from various entities at national and local government levels. This impact was considered as 'Moderate'. This risk did not required any management as none of the pilot biogas projects reached the stage of decision to invest.

Apart from the risks identified in the project design, the PIF identified the potential financial risks that the potential Project owners and local financial institutions may not be willing to invest in biogas technology due to lack of proven commercial approach. This identified risk is associated with financing of the waste to electricity facility/plant using the PPP model of financing. Given that there was a need for the financers to fund the ventures of waste to biogas, the confidence of the potential investors in the venture becomes important. This is particularly given the fact that the estimated investment costs associated with establishing a biogas to electricity plant is of the order of USD 5 million.

The PIR 2023, mentions that the rrisks to the project include the low appetite from private sector actors for investing in - or operating - biogas-based electricity generation facilities, either standalone or part of waste treatment infrastructures or other (agro) industrial activities. The PIR further states that the project (at its design) assumed the opposite, a significant share of the project's resources were initially budgeted for supporting various entities to kick start such operations. This is acknowledged and featured in the project's MTR, which suggests mitigation solutions and alternative routes for the project to follow. As such this risk could not be resolved and as an adaptive measure and to utilise the funds, it was decided to procure 3 trommel machines to separate the manure hereby helping the management of the MSW.

4.8 Social and Environmental Standards

At the PIF stage the Social and Environmental risks were identified through the Social and Environmental Risk Screening Checklist. The project was classified as "High risk" as per Social and Environmental Screening Procedure (SESP) guidance, which lists Municipal solid waste processing and disposal facilities as a high risk activity.
At the time of project design, the environmental risks were identified which included the environment impacts of the waste to biogas facilities. The identified possible impacts included aspects related to collection and processing of the waste and disposal of the spent waste out of the facility. The remedial measures suggested in the project design included assessments the feasibility studies and during the commissioning phase of MSW- based biogas plants.

During project preparation the SESP analysis was thoroughly revised to explore the Social and Environmental risk in detail.

As mentioned above (section 4.7) one of the risks identified was competition for sorted waste feedstock with other secondary uses. In order to mitigate this risk, the project carried out following measures[19]:

- Compiled a National Training and User Manual for Sorting Municipal Solid Waste with the aim of disseminating it nationally.
- Solid waste management ordinances for the five pilot cities was reviewed incorporating provisions for waste sorting and improved waste management.
- Sensitization and continuous raising of awareness amongst the populace and stakeholders involved in the waste management value chain

[19] As per PIR 2023

5. FINDINGS: PROJECT RESULTS

5.1 Overall results

The main questions for terminal evaluation are; (please see Annex B)

- **What have been the achievements of the objectives against the end of the project values of the log-frame indicators, with indicators for outcomes, indicating baseline situation and target levels, as well as the position at the close of the project?**
- **What are the achievements /Results in terms of contribution to sustainable development benefits, as well as global environmental benefits (direct and consequential GHG emission reduction)?**
- **How do the GEF Tracking Tool/Core Indicators at the Baseline and the one completed right before the Midterm Review compare with that, prepared at the time of Terminal Evaluation?**

The summary of the attainment of the results and project objectives is presented in this section of the report. The achievement of results against the Outcomes of the projects has been presented first, followed by the presentation of the achievement of the project goals and the project objectives. This is because the achievements of the project goals and the objectives have been assessed both, in terms of the indicators (for project goals and objectives as given in the log-frame) and in terms of the achievement of results for different Outcomes. As per the requirements, the evaluation regarding the attainment of the results has been carried out for the four individual outcomes of the project. The assessment regarding the attainment of results has been carried out in terms of the indicators provided in the log-frame. Wherever relevant, the reasons for the non-attainment of the targets have also been provided.

The mandatory ratings for the attainment of overall results have also been provided. The evaluation of the attainment of overall results has been carried out keeping in mind the main questions for terminal evaluation, as given in the Box at the beginning of this section.

5.1.1 Attainment of results– Outcome 1

Outcome 1 of the project was aimed at enhancing the knowledge, technical and managerial capacities of municipalities (in the five pilot cities), NEMA and MLHUD to support the deployment of biogas energy systems using MSW and waste water as the substrate.

Technical assistance was to be provided by an expert team to support the capacity building activities for municipalities, NEMA, MEMD and MLHUD, as well as to prepare the amendments required for integration of biogas energy into national policies and municipal ordinances.

One of the other Output under this component of the project was the package of financial incentives and other measures for ensuring the higher uptake of biogas technology for management of waste in the country. Under this component of the project financial incentive instruments for promotion of biogas projects was also to be developed. The expert team was to also design and submit proposals to enhance the regulatory framework to promote increased uptake of IWM and biogas technology. Different activities which were to be carried out for achieving Outcome 1 were as given in Table 15.

Table 15: Planned Outputs and Activities for Outcome 1

Outcome/ Output	Activity
Enhanced capacity of municipalities to develop waste management plans and manage municipal solid waste and wastewater in a more sustainable manner	
Output 1.1 Capacity development of municipalities other waste sector stakeholders on integrated waste management	Activity 1.1.1 – Workshops for municipalities and other waste sector stakeholders
	Activity 1.1.2 – Exchange visits between municipalities

Outcome/ Output	Activity
Output 1.2 Support towns and municipalities on the design and development of waste management plans and introduction of MSW disposal/off taker fees	Activity 1.2.1 – Review and compile existing data on organic quantity and composition of waste streams for IWM plans for five municipalities (where necessary) to include waste to energy considerations
	Activity 1.2.2 – Provide guidance in updating and developing waste management plans including the selection of appropriate biogas technology
	Activity 1.2.3 – Support to introduce MSW disposal/off- taker fees and enforcement frameworks at the municipal level
Output 1.3 Promotion of MSW biogas technology among municipalities, project developers, industry and the general public	Activity 1.3.1 – Development of sensitisation campaign
	Activity 1.3.2 – Training of promoters of IWM and source separation and the development of guidelines
Output 1.4 Integration of MSW based biogas in national policies, programmes and incentive instruments targeting renewable energy development, environmental protection and climate change mitigation	Activity 1.4.1 – Incentives introduced into national policy, legal and regulatory environment to promote increased uptake of IWM and biogas technology
	Activity 1.4.2 – Review draft National Solid Waste Management Plan and provide updates and recommendations for inclusion of biogas systems where necessary
	Activity 1.4.3 – Recommendations made for IWM enforcement strategy in line with the draft National Solid Waste Management Plan and environmental protection legislative framework
	Activity 1.4.4 – Policy advocacy for private sector and recommendations made for renewable energy and electricity regulation
Output 1.5 Multi- stakeholder platform on waste management and biogas established, whereby stakeholders will take on joint responsibility	Activity 1.5.1 – Assist MEMD, NEMA, UAAU, PSFU to establish multi-stakeholder platform on waste management and biogas

While most of the planned activities for different outputs under component 1 of the project were carried out, the activities targeted towards attracting the investment (e.g., activity 1.2.3, activity 1.4.1, and activity 1.4.4) from the private sector did not happen.

Regarding couple of activities mentioned in the above Table, although, the activities were carried out, the objectivity while carrying out the activities lacked. For example, the multi-stakeholder platform along with a technical working group got created by way of an announcement, but there were hardly any activities to support achieve, Outcome 1 or of the objectives of the project. For example, there is no participation or involvement of the industry in the multi-stakeholder platforms or training activities. Further, although the objective of the project included the biogas production from industrial waste water, there was no involvement of the waste water producing industries in the training, capacity building efforts either at the time of project design or its implementation.

Table 16 provides the details regarding the indicators for Outcome 1 of the project along with the baseline situation, the targets, and the level of attainment of the targets (in terms of the indicators). The indicators are as per the results framework for Outcome 1. For reference, the values of the indicators at the time of MTR and those self-assessed in PIR for the terminal year (2023) are also provided in the table.

Table 16: Attainment of results: Outcome 1

Indicator	Baseline	EOP Targets	Status at MTR	Rating at MTR	Status as per PIR 2023	Status at TE	Rating at TE[20]
Outcome 1: Enhanced capacity of municipalities to develop waste management plans and manage municipal solid waste and wastewater in a more sustainable manner							
Number of policy and regulatory proposals developed and adopted (#)	0	Support to 5 municipalities to introduce MSW disposal/off - taker fees and enforcement frameworks	0 policies 5 waste management ordinances from the cities of Mbale, Mbarara, Masaka, Jinja and Kampala have been updated Waste management plans for cities revised	**MS**	• 5 draft ordinances developed for the cities of Mbale, Mbarara, Masaka and Jinja and currently in the final stages of review i.e. pending clearance by the Solicitor General's office. • The project has also supported the initial review processes of ordinances and waste management plans for additional cities of Arua, Gulu, Lira, Fort Portal, Soroti, Hoima and the municipalities of Kabale, Tororo, and Masindi. • Also, the project supported the review of the National Urban Solid Waste Management Policy currently spearheaded by the Ministry of Lands, Housing and Urban Development. • The project is developing a national biogas strategy and standardized baselines for computation of emissions from wastewater and waste	• 2 Draft ordinance for the city of Mbarara and Masaka • Presentation and consultations with the stakeholders in other three pilot cities • Awareness creation workshops in additional cities • Draft National Biogas Strategy and Action Plan	**MS**

[20] GEF Rating Scale: 6 = Highly Satisfactory (HS) - exceeds expectations, no shortcomings; 5 = Satisfactory (S) - meets expectations and no or minor shortcomings; 4 = Moderately Satisfactory (MS) - more or less meets expectations and some shortcomings; 3 = Moderately Unsatisfactory (MU) – somewhat below expectations and significant shortcomings; 2 = Unsatisfactory (U) - substantially below expectations and major shortcomings; 1 = Highly Unsatisfactory (HU) -severe shortcomings; Unable to Assess (U/A): available information does not allow an assessment

Indicator	Baseline	EOP Targets	Status at MTR	Rating at MTR	Status as per PIR 2023	Status at TE	Rating at TE[20]
Number of municipalities (#) reporting increased capacity to undertake IWM, as a result of the projects capacity development Activities	0	19	10 cities and 3 additional municipalities under the Greater Kampala Metropolitan Area (Nansana, Mukono, Makindye, Kira and Entebbe) are currently reporting on IWM		• A total of 19 urban areas i.e. 11 cities of Jinja, Masaka, Mbale, Mbarara, Kampala, Soroti, Fort Portal, Lira, Gulu, Arua, Hoima, and 3 municipalities of Tororo, Masindi, Kabale plus 5 in the Greater Kampala Metropolitan Area(GKMA) of Nansana, Mukono, Makindye Ssabagabo, Kira and Entebbe are reporting on IWM approaches promoted by the project. This has been achieved partly through the stakeholder platforms i.e. GKMA Technical Working Group and Waste to Energy Thematic working group under the National Renewable Energy Platform(NREP) of the Ministry of Energy and Mineral Development (refer to spot messages from cities and municipalities and minutes from stakeholder meetings) • A total of 19 urban areas are now reporting to project related activities.	• The project organized training and capacity-building sessions on IWM for the municipalities	**MS**
Multi-stakeholder platform established	0	1	1 Multi-stakeholder platform on IWM in cities and municipalities launched in September 2021.		• 2 Multi-stakeholder platforms have now been formed by the project. • The project formed and launched the National Thematic Working Group on Waste to Energy which also feeds into the National Renewable Energy Platform. • Also supported the formation and launch of the. GKMA Technical Working Group • Furthermore, to support project activities a digital platform, in the form of a website (www.namabiogasug.com) is in place serving as a conduit through which information regarding waste management, and resource recovery is shared.	• Although Multi-stakeholder platform was launched there was almost no activity under the platform • The Technical working group has representatives from different line ministries and government departments. It meet a couple of times to review the waste flow studies and a couple of other matters	**MS**

Based on the achievement of the indicators for the outcome, the achievement of Outcome 1 of the project is rated as Moderately Satisfactory (MS).

5.1.2 Attainment of Results – Outcome 2

Under Outcome 2 the project was to implement three waste-based biogas energy systems to; demonstrate the use of organic components of municipal and agro-processing waste streams,

wastewater, and sewerage sludge for generation of biogas/electricity; demonstrate the technical maturity and sustainability of the chosen business models; generate operational experiences for further optimization and as input for policy development. Different activities which were to be carried out for achieving Outcome 2 are as given in Table 17.

Table 17: Planned Outputs and Activities for Outcome 2

Outcome/ Output	Activity
Outcome 2: Biogas and WWT plants using MSW feedstock and sewage sludge procured and fully operational	
Output 2.1 Business models designed for biogas digester systems for a range of plant sizes	Activity 2.1.1 – Development and promotion of MSW biogas business models
Output 2.2 Feasibility studies, permitting procedures and final engineering plans executed and formalization of responsibilities of project partners	Activity 2.2.1 – Feasibility studies conducted/reviewed for three sites
	Activity 2.2.2 – Permitting procedures conducted
	Activity 2.2.3 – Development of final engineering plans conducted
	Activity 2.2.4 – Clarification of roles, evaluation of cash flow projections and optimization of financial structure
Output 2.3 Technical support and training for pilot projects	Activity 2.3.1 – Training of technical staff and preparation of manuals and procedures
	Activity 2.3.2 – Monitoring and optimization of operational procedures and technical performance of pilot plants
Output 2.4 Investment financing for the 3 plants facilitated and secured	Activity 2.4.1 – Support to pilot sites to secure finance
Output 2.5 Procurement and construction or modification of biogas demonstration plants	Activity 2.5.1 – Procurement and construction of biogas plant at New Kampala Landfill
	Activity 2.5.2 – Procurement and construction of biogas auxiliary systems at Nakivubo wastewater treatment plant
	Activity 2.5.3 – Procurement and construction of biogas auxiliary systems at Kakira sugar factory

As per the project document, at the PIF stage, establishment of demonstration plants in three municipalities was suggested, however at PPG stage a prefeasibility assessment (including financial modelling) of the three proposed sites as well as other potential municipal MSW sites revealed that municipal pilot projects with or without the proposed PPP models were not financially or technically recommended. This was due to; lack of investment capital; low capacity to implement projects (for example the municipal composting site project); and likely difficulties in setting up a system to obtain sufficient feedstock.

Accordingly at the time of project design, three sites mentioned under Output 2.5 in the above Table were selected as the pilot projects. It was expected that pilot activities at these three sites will demonstrate technical maturity of selected biogas technology and the sustainability of the potential chosen business models.

However, as was mentioned before (please see bullet point d in section 3.1), there are issues with the selection of Kakira Sugar Biogas project and Nakivubo waste water treatment plant as pilot project sites. The issue is that the two pre-identified project (Kakira Sugar and NWSC) as the pilot projects were either at advanced stages of implementation or were already commissioned before the start date of the GEF project being evaluated. For example, the alcohol production distillery (along with treatment of distillery waste product to produce biogas) of Kakira Sugar got commissioned on 23 January 2017, whereas the start date (date of signing of project document) of the NAMA project is 13 September 2018. Similarly, the investment decision for the waste water based biogas plant of NWSC was taken much

before[21] the start date of the NAMA project. Moreover, there is no contribution by the NAMA project, towards operations, etc. of these two biogas based projects.

Thus, it is not appropriate to consider these two waste to biogas plants as contribution by the project being evaluated. However, it would have been good to take these two projects on board and learn from them and also use the experience for training and capacity building etc.

One of the other issues with the biogas/electricity project of NWSC is that it has very high auxiliary power consumption. After the auxiliary power consumption there is no electricity left for export to the grid (please also see bullet point a in section 3.1).

For the third proposed pilot project, at Kampala landfill site, it was assumed that the results of the feasibility study will be positive and it will be possible to get the investment for the project. Also, the assumption was that it will be possible to complete all the sequential steps of feasibility study, site selection, getting approvals, getting investment decision, detailed engineering, construction, procurement and commissioning within the implementation timelines of the NAMA project. Given the scale of the investment, this assumption was not realistic. Further, there were no plans in the project design regarding how to approach potential private sector investors.

Table 18 provides the details regarding the indicators for Outcome 2 of the project along with the baseline situation, the targets, and the level of attainment of the targets (in terms of the indicators). The indicators are as per the results framework for Outcome 2. For reference, the values of the indicators at the time of MTR and those self-assessed in PIR for the terminal year (2023) are also provided in the table.

Table 18: Attainment of results: Outcome 2

Indicator	Baseline	EOP Targets	Status at MTR	Rating at MTR	Status as per PIR 2023	Status at TE	Rating at TE
Outcome 2: Biogas and wastewater treatment plants using municipal solid waste feedstock and sewage sludge procured and fully operational							
Installed electricity generating capacity of MSW-based biogas pilot projects (MW)	0 MW	2.9 MW from all demonstration sites	0.4 MW from Kakira Sugar Limited	**MU**	0.4MW from Kakira Sugar Works is operational. The 0.4MW Biogas plant at NWSC is currently operational	**17 KW** • The waste from a biogas plant to an electricity facility at Kakira Sugar having a capacity of 0.4 MW is operational. However, at TE it is not being considered as a contribution by the NAMA project as the facility was commissioned much before the start date of the NAMA project. • The waste to biogas to electricity facility of NWSC is operational. However, it is not being considered as a contribution by the NAMA project, as the investment decision and construction of the facility happened much before the start date of the NAMA project. Even if this facility is considered as a contribution by the NAMA project there won't be any contribution as almost the entire electricity generated gets used within the waste processing and biogas plant with no exportable surplus. • For the third planned pilot project MSW to Biogas to electricity at Kampala landfill site, a detailed feasibility study was carried out. It	**U**

[21] As per the Annual Report of NWSC 2018-19, "the construction contract was signed on 3rd November 2011. The initial site was located within the Nakivubo swamp. However, upon commencement of the work, the site conditions proved unsuitable. The project was therefore relocated to Bugolobi in Jan 2014. The overall progress was at 98% as at 30 June 2019.

						was not taken forward by the project team as it was realized that given the high capital cost, it would not be possible to get a private-sector investor. • The project has supported establishment of small institutional demonstration biogas plants at the pilot cities of Jinja, Kampala, Masaka, Mbale and Mbarara. - Site assessment and selection was conducted and five sites selected including Masaka SS in Masaka; Kyanja Demonstration Farm at KCCA; Nakaloke SS in Mbale; Jinja College School in Jinja; and Mbarara Junior School in Mbarara City. At the time of the field mission for the TE, the small demonstration biogas facilities along with the pit type latrines were under construction. These institutional demonstration biogas plants are quite small. Each facility, except Mbarara, has an installed electricity generation capacity of 3kW. The one of Mbarara is 5kW	
Number of investments undertaken	0	3	2 investments, at Kakira Sugar Limited biogas plant, and NWSC biogas Plant in Kampala		2 investments, i.e. Kakira Sugar Limited biogas plant, and NWSC biogas Plant in Kampala are already in place as demonstration plants.	**0 Investments** • At TE, the investments in Kakira Sugar and NWSC biogas plants are not being considered as those facilitated by the NAMA project, as the investments happened before the start date of the NAMA project	**U**

As per the project team, having conducted the feasibility study for biogas to electricity plant utilizing Municipal Solid Waste in Kampala, it was discovered that the plant would cost about USD 15 million of which the project only had 5% part financing. Extensive engagement of the private sector was carried out with entities such as Sejin, GGGI, North-to Suth Linkages, Global Gases Group, Synthetic Clean Oil, RIC energy, Ministry of Finance, Total Energies etc. However, due to the time constraints, it was realized by the project team that the private sector would not access the available funds.

As was mentioned before (please see section 4.1) at the MTR of the project, it was realized that the Public Private Partnerships as a means of obtaining co-financing for the establishment of biogas to electricity plants would not be realized within the project duration. The Project Board taking note of it considering that it would cause low delivery as far as fund utilization is concerned, approved the provision of trommel machines as one of the ways to utilize the funds, meant for the pilot projects (under outcome 2). As far as the utilisation of funds is concerned, the provision of trommel machines improved the performance of the project, however, it did not add to the results of the project as this measure is not supporting any of the project objectives and the project outcomes. This is one of the significant changes in the project due to the recommendations of the MTR. As per the recommendation funds meant for pilot plants were reallocated for procurement of demonstration mobile trommel mills for separation of manure. It was decided to go for the trommel machine for sorting compost at three pilot cities (Jinja, Mukono, and Kampala). Due to the quantum of funds and the price of the trommel machines it was not possible to go for the trommel machines in all the five pilot cities. The project procured the three trommel machines. At the time of TE one of these three machines was being commissioned (at Jinja), while the machines at the other two locations was yet to be delivered at site. It is important to note that these trommel machines are to support the MSW to compost CDM –PoA project (NEMA CDM Composting Project) using windrow based aerobic fermentation technology,

which was implemented in Uganda in 2005 (please also see section 3.3). The NEMA CDM project did not perform since its inception, and is presently in bad shape.

The board also approved provision of monitoring (safety) equipment for ensuring safe operations of the biogas plant at Nakivubo Wastewater treatment plant of NWSC. However, during implementation of the project these monitoring equipment did not got procured and supplied to the biogas plant.

One of the other changes in the project during its implementation has been establishment of small institutional demonstration biogas plants at the pilot cities of Jinja, Kampala, Masaka, Mbale and Mbarara. - Site assessment and selection was conducted and five sites selected including Masaka SS in Masaka; Kyanja Demonstration Farm at KCCA; Nakaloke SS in Mbale; Jinja College School in Jinja; and Mbarara Junior School in Mbarara City. At the time of the field mission for the TE, the small demonstration biogas facilities along with the pit type latrines were under construction. These institutional demonstration biogas plants are quite small, with each one having a capacity to generate about 3.5 KW of electricity.

The achievement of results for Outcome 2 of the project is rated as Unsatisfactory (U).

5.1.3 Attainment of results – Outcome 3

Outcome 3 of the project was focused on scaling up implementation of the waste based biogas plants in the county. This was proposed to be achieved through TA for development of pipeline of potential MSW based biogas projects. The replication was to be facilitated through development of a biogas strategy and implementation plan provision of grant/technical assistance from the fund created for the purpose and approach to attract investment into MSW- based biogas sector. Different activities which were to be carried out for achieving Outcome 3 were as given in Table 19.

Table 19: Planned Outputs and Activities for Outcome 3

Outcome/ Output	Activity
Outcome 3: Biogas technology replicated in other potential municipalities with the help of a grant and technical assistance fund	
Output 3.1 Development of a pipeline of MSW- based biogas projects	Activity 3.1.1 – Elaboration of conceptual proposals
	Activity 3.1.2 – Assistance to facilitate access to existing financial products and facilities
Output 3.2 Mid and long- term strategy for the replication of biogas projects developed and implemented	Activity 3.2.1 – Biogas strategy and implementation plan drafted
	Activity 3.2.2 – Learning days at biogas sites
Output 3.3 Grant/technical assistance fund and approach to attract investment into MSW based biogas sector developed	Activity 3.3.1 – Grant and technical assistance fund for MSW- based biogas projects

During implementation of the project, work (as required as per Table 19 above) was carried out for achieving the objectives of Outcome 3 of the project. The lack of activity under this component of the project was largely due to the failure of the project to establish and demonstrate the pilot projects. The least which could have been done is use the good performance of the Kakira Sugar and NWSC biogas plants to prepare the case studies, dissemination of the success stories and work out the business/investment models.

The project design did not provided an approach for engaging the private sector and to invite them for making investments in the biogas sector. For example, post feasibility study for MSW to biogas/electricity project at Kampala, the results did not get shared with the potential private sector investors.

However, as per the project team, through the awareness campaigns, the project created a lot of interest in waste through the website and the platforms, which generated collaborations with various stakeholders like Stanbic bank, Global Green Growth Institute, private sector in the country, international entities like Total Energies, Siemens, Global Gases Group, North to South Linkages (UK), Ric Energy (USA), Sejin G&E (Korea) and others.

Table 20 provides the details regarding the indicators for Outcome 3 of the project along with the baseline situation, the targets, and the level of attainment of the targets (in terms of the indicators). The indicators are as per the results framework for Outcome 3. For reference, the values of the indicators at the time of MTR and those self-assessed in PIR for the terminal year (2023) are also provided in the table.

Table 20: Attainment of results: Outcome 3

Indicator	Baseline	EOP Targets	Status at MTR	Rating at MTR	Status as per PIR 2023	Status at TE	Rating at TE
Outcome 3: Biogas technology replicated in other potential municipalities with the help of a grant and technical assistance fund							
Grant/technical assistance fund and approach to attract investment into MSW- based biogas sector established	-	Grant/ technical assistance fund established	No grants given out yet	**U**	• Utilized seed funds from GEF grant to carry out feasibility studies to establish biogas to electricity plant in KCCA and enhance biogas production in NWSC plant and carry out waste flow and characterization studies for the cities of Mbale, Mbarara, Masaka and Jinja to the tune of USD 239,825. These studies give the technical assistance in designing waste biogas to electricity facilities for the cities and entities like NWSC. • Learnings from the first five pilot cities has informed updating of ordinances and waste management plans for the additional cities of Soroti, Arua, Lira, Gulu, Hoima and Fortportal and bylaws for the municipalities of Masaindi, Tororo and Kabale which promote private sector financing including PPP models. • Learnings from the feasibility studies carried out in Kampala i.e. NWSC and KCCA have also triggered waste flow surveys and characterization of waste studies in the cities of Jinja, Mbale, Masaka and Mbarara.	• No Grant or technical assistance fund got established • No work towards attracting the private sector investment was either planed or carried out during the implementation of the project.	**U**

Indicator	Baseline	EOP Targets	Status at MTR	Rating at MTR	Status as per PIR 2023	Status at TE	Rating at TE
Number of MSW- based biogas project concepts prepared (#)	0	5 concepts prepared	1 project concept has been prepared with regards to sourcing for funds to support installation of at least 2.2 MW plant at KCCA although it is at draft stages		• 1 project concept on waste to electricity facility has been developed and is at the second stage of approval i.e. Review by the Sustainable Energy Development Program working group	**0 Project Concept** • Apart from MSW to Biogas pilot project of KCCA at Kampala (which was one of the three pre-identified pilot projects), no project concept was developed. As this was one of the pilot projects considered under Outcome 2, it can't be considered under Outcome 3 as well	**U**
Grants disbursed from the fund (either technical assistance or investment)	0	US $900,000	No grant has been disbursed yet since the grant and technical assistance fund has not yet been created.		• So far, about USD 239,825 of the seed grant from GEF/UNDP has been disbursed for feasibility studies carried out for KCCA and NWSC as well as characterization and waste flow studies for Mbarara and Mbale Cities. • Other waste flow studies for Masaka and Jinja have also been initiated and consultants have submitted inception reports	• No grants were provided • Part of the funds meant for Grants were used for carrying out waste characterization studies in the pilot cities • Part of the funds were utilized for the feasibility study for MSW to Biogas/electricity at Kampala waste dump site	**U**

Achievement of results for Outcome 3 of the project is rated as U (Unsatisfactory).

5.1.4 Attainment of results – Outcome 4

Objective of the Outcome 4 of the project was to support replication of the waste to biogas plants in the country by disseminating the knowledge products and supporting the potential funding through NAMA. Different activities which were to be carried out for achieving Outcome 4 were as given in Table 21.

Table 21: Planned Outputs and Activities for Outcome 4

Outcome/ Output	Activity
Outcome 4: Lessons learnt, and success of the demonstration projects supports replication and scaling-up of project results	
Output 4.1 Project website	Activity 4.1.1 – Development of Project website
Output 4.2 Guidelines on waste management practices updated, lessons learned and best practices documented and disseminated	Activity 4.2.1 – Conduct lessons learned studies
	Activity 4.2.2 – Dissemination of lessons learned studies
Output 4.3 Biogas technology for energy generation and lessons learned from pilot projects integrated into the national renewable energy and MEMD programmes, standardized baselines for calculating emission reductions established, and NAMA registered on the UNFCCC NAMA Registry.	Activity 4.3.1 – Design and submit proposals to update and enhance regulatory framework for Biogas technology for energy and integrate lessons learned from pilot projects into the national renewable energy and MEMD programmes
	Activity 4.3.2 – Development of standardized baselines for calculating Emissions reductions from Biogas
	Activity 4.3.3 – Registration of project on UNFCCC NAMA Registry
Output 4.4	Activity 4.4.1 – Conduct annual Project Implementation Reviews

Outcome/ Output	Activity
Annual Project Implementation Reviews	
Output 4.5 Mid-Term Review	Activity 4.5.1 – Conduct Mid Term Review
Output 4.6 Project Terminal Evaluation	Activity 4.6.1 – Conduct Terminal Evaluation

Under activity 4.1.1 a project website has been developed, but there are no contents at the website. For Output 4.2 no specific lessons learned studies were conducted and disseminated. The lack of work for Output 4.1 and 4.2 is largely due to lack of results from the pilot projects.

As was mentioned earlier (please see bullet point g in section 3.1), the concept of standardised based line and NAMA under Activity 4.3.2 and Activity 4.3.3, lacks objectives in the overall context of the project. For example, the project design has not clarified the role these activities would play towards achieving the objective of the project or towards the larger context of resolving the issues with the waste management in the country. The concept of 'Standardised Baseline (SBL)' is typically used for getting the benefits of carbon credits for GHG mitigation projects under market based mechanism (e.g. CDM projects), however, technically they can also be used for other GHG mitigation projects and programs. As regards registering the project as NAMA project, it needs to be appreciated that the idea of registering a given project as a NAMA is largely to attract funding from the development agencies. For that matter, the additional biogas projects (as replication projects) need to be fully developed before being put on the UNFCCC website. This was not the case for the project being evaluated.

PIRs were prepared regularly. The MTR of the project happened, however, it was delayed. TE of the project is presently underway.

Table 22 provides the details regarding the indicators for Outcome 4 of the project along with the baseline situation, the targets, and the level of attainment of the targets (in terms of the indicators). The indicators are as per the results framework for Outcome 4. For reference, the values of the indicators at the time of MTR and those self-assessed in PIR for the terminal year (2023) are also provided in the table.

Table 22: Attainment of results: Outcome 4

Indicator	Baseline	EOP Targets	Status at MTR	Rating at MTR	Status as per PIR 2023	Status at TE	Rating at TE
Outcome 4: Lessons learned and success of the demonstration projects supports replication and scaling-up of project results							
Number of Knowledge Management products developed and disseminated (#)	0	• Project website updated (1) • Guidelines on waste management practices updated and disseminated (1) • Lessons learned and best practices documented and disseminated (1)	1-Project Website already launched in November 2020 and is operational	**MS**	The project website was launched (www.namabiogasug.com). The National Training Manual for Sorting Municipal Solid Waste was developed and disseminated in collaboration between NEMA and the Ministry. Lessons learned from capacity building and training of the five pilot cities were used to inform further engagement with the additional 6 cities and 8 municipalities supported to update ordinances/bylaws and waste management plans. Dissemination of the Gender Strategy for the project to the pilot cities and additional urban areas carried out.	• The project website has been created, but there is no content on the website, except a brief introduction about the project • No knowledge of products or waste management practices was disseminated under the project	**U**
Standardized baselines for calculating emissions reductions established	-	• Standardised baselines for emissions reductions from biogas	Standardized baselines have been developed by a consultant		The standardized baselines report for computing emission reductions from waste and wastewater is under review by the Climate Change Department of the Ministry of Water and Environment for quality assurance, pending final review by an international firm.	• A consultant was hired to prepare the standardized baseline, however, this task could not be completed	**U**
NAMA registered on the UNFCCC Registry UNDP/GEF		• Project is registered on UNFCCC Registry	The project is not yet a registered UNFCCC NAMA for Uganda		The NAMA is registered on the UNFCCC website.	• No NAMA got registered at the UNFCCC	**U**

The achievement of results for Outcome 4 of the project is rated as Unsatisfactory (U)

5.1.5 Attainment of project goals, project objectives

Table 23 provides the details of the level of attainment of the indicators (as per the results framework) for project objectives and the project goals. For reference, the baseline values of the indicators and those at the time of MTR and those self-assessed in PIR for the terminal year (2023) are also provided in the table.

Table 23: Attainment of results: Project Objective

Indicator	Baseline	EOP Targets	Status at MTR	Rating at MTR	Status as per PIR 2023	Status at TE	Rating at TE
Project Objective: Improved waste management practices in towns and municipalities through the introduction of integrated wastewater treatment plants and biogas digesters							
Indicator 1: Achieved direct GHG emission reductions by pilot biogas energy plants and replication (ton CO_2eq/yr.)	0 ;	88,300	12,277	**S**	• 12,200 tonnes CO2eq/yr. reduced from the 0.4MW of electricity currently produced by the Kakira Sugar Limited plant (Kakira Report 2022) • The National Water and Sewerage Corporation (NWSC) biogas plant is technically ready but electricity is not yet being generated (awaiting obtaining a license).	**0.0** • The biogas project of Kakira Sugar is not being considered as a pilot project under the NAMA project as it was commissioned much before the start date of the NAMA project. • The waste to biogas to electricity facility of NWSC is operational. However, at TE it is not being considered as a contribution by the NAMA project, as the investment decision and construction of the facility happened much before the start date of the NAMA project.	**U**

Indicator	Baseline	EOP Targets	Status at MTR	Rating at MTR	Status as per PIR 2023	Status at TE	Rating at TE
Indicator 2: Number of people benefitting from improved organic waste management	0	1,980,000 (male = 990,000, female = 990,000)	1,005 (674 male and 331 female) have directly benefited from project activities, building capacity through training, benchmarking activities, etc. An unknown number has benefited from raising awareness and sensitization through spot messages, radio talk shows, keep city clean drives in the pilot cities of Kampala, Jinja, Mbale, Mbarara, and Masaka as well as the additional cities Tororo, Masindi, Arua, Lira, Fort Portal and Kabale. Audience coverage of the various radios where the spot messages, radio adverts, and TV shows were held was conservatively estimated to reach at least 1000 people each giving a very rough estimate	**MS**	• Cumulatively, 1,005 (674 male and 331 female) have directly benefited while an estimated 5,000,000 people have been reached indirectly through the awareness and sensitization drives carried out through the media. • Directly, the project has carried out training, supported benchmarking activities for technical personnel, private sector players in waste management, and politicians in the five pilot cities of Kampala, Masaka, Mbarara, Jinja and Mbale. • Meanwhile, the project has also carried out sensitization and awareness/ keep city clean drives in the pilot cities and the additional cities of Arua, Gulu, Lira, Fort Portal, Soroti, and the municipalities of Kabale, Tororo, Masindi. In each of these areas, various radio shows and spot messages/ adverts have been continually run. • The listenership of media platforms i.e. (Radio talk shows, TV adverts, and spot messages) has been estimated through surveys.	**20,000** • The planned pilot demonstration projects and the replication projects for waste management as planned under the project could not take shape. Thus, there was no improved organic waste management during the implementation of the project. Thus, the people did not benefit due to improved waste management. • The project supported establishment of small institutional demonstration biogas plants at the pilot cities of Jinja, Kampala, Masaka, Mbale and Mbarara. - Site assessment and selection was conducted and five sites selected including Masaka SS in Masaka; Kyanja Demonstration Farm at KCCA; Nakaloke SS in Mbale; Jinja College School in Jinja; and Mbarara Junior School in Mbarara City. At the time of the field mission for the TE, the small demonstration biogas facilities along with the pit type latrines were under construction. The students/staff at these institutions will be the beneficiaries (about 20000 persons) for these institutional biogas plants.	U
Indicator 3: Financing mobilized for investment in MSW based biogas energy systems (US$)	0	11.5 million	Despite US$ 15,646,557 as equity contribution by NWSC for the biogas plant and $4m by Kakira Sugar Limited, funding has to found for the demonstration plant at Kampala landfill site.	**MS**	A total of US$20,051,962 has been mobilized as equity for construction of MWS biogas energy systems; -Kakira Sugar Limited ($4million) -NWSC ($15,646,557) biogas plants which are now operational. -Kampala Capital City Authority (KCCA) has designated land of 5 acres at Kiteezi landfill estimated at $405,405	**0.0** • The biogas project of Kakira Sugar is not being considered as a pilot project under the NAMA project as it was commissioned much before the start date of the NAMA project. • The waste to biogas to electricity facility of NWSC is operational. However, at TE it is not being considered as a contribution by the NAMA project, as the investment decision and construction of the facility happened much before the start date of the NAMA project.	**U**

Indicator	Baseline	EOP Targets	Status at MTR	Rating at MTR	Status as per PIR 2023	Status at TE	Rating at TE
Indicator 4: Annual volume of electric energy produced by biogas pilots (MWh/yr.)	0	20,300	2,800 from Kakira Sugar	**MS**	2,800 MWh/yr. from the 0.4 MW biogas plant at Kakira Sugar Limited. The additional NWSC biogas plant is operational	**30000 KWh/Yr** • The biogas project of Kakira Sugar is not being considered as a pilot project under the NAMA project as it was commissioned much before the start date of the NAMA project. • The waste to biogas to electricity facility of NWSC is operational. However, at TE it is not being considered as a contribution by the NAMA project, as the investment decision and construction of the facility happened much before the start date of the NAMA project. Even if this facility is considered as a contribution by the NAMA project there won't be any contribution as almost the entire electricity generated gets used within the waste processing and biogas plant as auxiliary power with no exportable surplus. • The NAMA project supported establishment of small institutional demonstration biogas plants along with small capacity of electricity generation at the pilot cities of Jinja, Kampala, Masaka, Mbale and Mbarara. At the time of the field mission for the TE, the small demonstration biogas facilities along with the pit type latrines and electricity generation were under construction. The aggregate capacity of the electricity generation is about 17 KW. Based on the quantum of biogas and considering that part of the biogas will be used for cooking, these generators are expected to operate for 2-3 hrs a day, leading to generation of about 30000 KWh of electricity per year	

At TE, the values of achievement of targets for most of the indicators the project are not in agreement with PIR for the year 2023. The major reason for the variation in the assessment of achievement between the PIR and TE is that the PIR has considered the Biogas plants of Kakira Sugar and NWSC as the pilot

projects under the NAMA project, whereas at TE these are not being considered as the pilot projects under the project, for the reasons that these two facilities were either already operational or at advanced stages of construction much before the start date of the NAMA project. As was explained in the earlier these two waste to biogas facilities got established by the respective organisations at their own without any contribution/assistance by the NAMA project. There was no technical or financial support for this from the project.

Given the performance of the project the **achievement of Project Objectives is rated as Unsatisfactory (U).**

5.1.6 Global environmental benefits

The global environmental benefit of the project is the reduction in the emission of greenhouse gases (GHG) to help the global community address climate change. The GHG emission reductions due to the project were to happened, firstly due to replacement grid electricity with the electricity generated in the waste based biogas plants which is a renewable source of energy and secondly, due to avoidance of methane emissions due to anaerobic delay of the waste. Based on the consideration at the time of project design the likely direct reduction in the emissions of GHG due to the project were computed on ex-ante bases as given in Table 23 (indicator 1).

The achievement of the global environment benefits due to the project, measured in terms of direct GHG emission reductions could not achieved as the three waste based pilot projects for biogas generation could be established by the NAMA project. Also, there is no replication biogas project which is likely to be established, post implementation of the NAMA project. As an adaptive measure the NAMA project funded establishment of three trammel mills at the three of the five pilot cities of the NAMA project. Although, the trammel mills would support the objective of waste management by separating the compost from the treated (by carrying out the composting under aerobic conditions) MSW. However, the operations of the trammel mills don't lead to reduction in the emission of GHGs.

The NAMA project funded establishment of five (one each in the five pilot cities) small institutional biogas plants. At the time of TE these biogas plants were being constructed. Once operational these institutional biogas plants would lead to reduction in the emission of GHGs (post implementation of the NAMA project). However, these institutional biogas plants are very small (total capacity of 17 KW). Thus, subject to successful operations of these institutional biogas plants, the potential reduction in the emission of GHG will be of the order of 30 to 50 tons of CO2 equivalent per year.

5.2 Relevance

The main questions for terminal evaluation are; (please see Annex B)

- **To what extent is the activity suited to local and national development priorities and organizational policies, including changes over time?**
- **To what extent is the project in line with UNDP Operational Programs or the strategic priorities under which the project has been funded?**

The NAMA project targeted two development challenges in Uganda, management of waste and meeting the demand for energy (by renewable sources). As per the project document, Uganda's urban population will increase from six million in 2013 to over 20 million in 2040. While cities can help propel growth, the speed of urbanization is challenging and can lead to congestion and strain infrastructure, lowering productivity. The project document further elaborates that as per a study by the National Water and Sewerage Corporation, under a business- as- usual scenario, the biochemical oxygen demand load to the environment could increase by as much as 370% by 2052, using 2008 as the baseline.

Accordingly the Uganda Vision 2040 and five- year National Development Plans (NDP) of the country explicitly seek to pursue climate- resilient and low- carbon development paths including effective

management of GHG emissions from waste and waste water. A National Climate Change Policy (NCCP) – approved by the Ugandan Cabinet in April 2015 – aims to harmonise climate change action across all sectors and levels of governance, from central to local Government, including addressing issues related to decentralized waste management.

The NAMA project is in line with the Uganda vision 2040, the five- year NDP and the NCCP as it addresses the underlying development issue and the global environmental problem of greenhouse gas emissions resulting from improper and inadequate management and treatment of wastewater and municipal solid waste in towns and municipalities in Uganda. The NDP-III of Uganda focus on inclusive growth, transformational governance, natural resources and the environment integrates the SDGs. At the time of its design the NAMA project was in line with the following objectives of the NDP-III of Uganda;

- NDP-III objective 2. Strengthen the private sector to create jobs.
- NDP-III objective 4. Increase productivity and well-being of population.
- NDP-III objective 5. Strengthen the role of the state in development

The Project is cross cutting and addresses following Sustainable Development Goals (SDGs) of the United Nations; 5) Gender equality; (6) clean water and sanitation; (7) affordable and clean energy; (9) industry innovation and infrastructure; (11) sustainable cities and communities; (12) responsible consumption and production; (13) climate action.

The NAMA project supports the following United Nations Sustainable Development Cooperation Framework (UNSDCF) outcome involving UNDP:

- Output 1.1. Institutions and systems at national and subnational levels enabled for effective and accountable service delivery in line with national, regional and international obligations and commitments
- Output 2.1.2. Public/private sector and MSMEs in targeted value chains (agriculture, tourism, mining, industry and energy) have increased capacity and access to productive assets and markets; and engage in green and inclusive businesses for livelihood and job creation
- Output 2.1.3. Enabling environment strengthened to expand public and private financing for the achievement of the SDGs
- Output 2:2.2. Enhanced capacities of institutions and communities at national and subnational levels to mitigate and adapt to climate change and disaster risks
- Output 2.2.3. Increased and equitable access to and use of modern, renewable and affordable energy sources and services

The project is aligned with the development priorities and organizational policies of Uganda. **The relevance of the NAMA Biogas project is rated as Satisfactory.**

5.3 Effectiveness

The project was to support the construction of biogas for electricity generation projects, using MSW, wastewater and sewage as the substrate for biogas production. The project was to demonstrate the use of biogas technology for the treatment of waste and the generation of electricity in the pilot projects. It was envisaged that successful demonstration of the technology will lead to scaling up of the planned interventions and will also lead to replication of the concept in other locations and municipalities across the country. As was mentioned in the earlier section of the report (please see Section 5.1.5), the project has not been able to achieve the envisaged demonstration of biogas technology for the twine purpose of waste management and energy generation.

The project has not been able to implement component 2 of the project wherein the pilot projects for biogas /electricity generation were to be supported by the project. This is partly because two of the pilot projects which were pre-identified at the project design stage were either already commissioned or were at the advanced stages of implementation, before the start date of the NAMA project. Accordingly, these two biogas projects are not being considered as contributions by the NAMA project. Even if these two biogas projects (Kakira Sugar and NWSC) are considered as contributions by the NAMA project, the situation regarding the performance of the project against the envisaged objectives does not change to a meaningful level. The NAMA project has not been able to promote replication (as envisaged under component 3 of the NAMA project) of the waste-based Biogas projects in the country. Also, the project did not produce any knowledge products (as was envisaged under Component 4 of the NAMA project). The project implementation has fallen short of the targets for all four targeted Outcomes of the project.

The project design and implementation have practically no gender considerations, except for mentioning gender in a couple of places in the project document. Also, there was no human rights approach in the design and implementation of the project. Thus, there is no contribution by the project towards gender equality, empowerment of women, and human rights considerations.

The **Effectiveness of the project is rated as Unsatisfactory**.

5.4 Efficiency

The main questions for terminal evaluation are; (please see Annex B)

- **To what extent the objectives, expected outcomes, and outputs have been achieved?**
- **To what extent the results have been delivered with the least costly resources possible?**
- **What are the positive and negative, foreseen, and unforeseen changes to and effects produced by a development intervention?**

The goal of the project was a reduction in the GHG emissions from the waste management sector and the generation of renewable energy from waste. The project has fallen short of expected performance regarding the establishment of the pilot biogas projects (and hence direct GHG emission reduction), development of a pipeline of biogas projects for replication, etc.

As the NAMA biogas project could not lead to the installation of the pilot projects for biogas production there are no direct GHG emission reductions due to the project. Further, going forward there would not be any reduction in the emissions of GHG which can be attributed to the NAMA project, post its implementation.

None of the objectives of the project could be achieved. The **efficiency of the project is rated as Unsatisfactory.**

5.5 Overall Project Outcome

The assessment of the overall project outcome is based on the ratings for relevance, effectiveness, and efficiency. **Based on the rating for relevance, effectiveness, and efficiency, the Overall project outcome is assessed as Unsatisfactory.**

5.6 Country ownership

The main questions for terminal evaluation are; (please see Annex B)

- **Was the project concept in line with the development priorities and plans of Uganda?**
- **Were the relevant country representatives from government and civil society involved in project implementation, including as part of the project steering committee?**
- **Was an inter-governmental committee given the responsibility to liaise with the project team, recognizing that**

more than one ministry should be involved?
- **Have the government(s), enacted legislation, and/or developed policies and regulations in line with the project's objectives?**

As mentioned in section 5.2, the NAMA Biogas project was in line with the development priorities and plans of the national government in Uganda.

The project design and the implementations were carried out in close coordination and consultation with different government agencies. Several government agencies and institutions were involved in the execution of the project. The representative of the pilot cities where the intervention under the project was planned and the Ministry of Environment were members of the project board.

The project was implemented under NIP with the Ministry of Energy and Mineral Development as the implementing partner. The project board had representatives from all the concerned ministries/departments. There was active participation by the important government officials in the implementation of the project. There was country ownership for the project.

5.7 Mainstreaming

The main questions for terminal evaluation are; (please see Annex B)

- **How is the project successfully mainstreaming other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and women's empowerment?**
- **Whether it is possible to identify and define the positive or negative effects of the project on local populations (e.g., income generation/job creation, improved natural resource management arrangements with local groups, improvement in policy frameworks for resource allocation and distribution, regeneration of natural resources for long term sustainability).**
- **If the project objectives conform to agreed priorities in the UNDP country program document (CPD) and country program action plan (CPAP) / One Strategic Plan (OSP).**
- **Whether there is evidence that the project outcomes have contributed to better preparations to cope with disasters.**
- **Whether gender issues have been taken into account in project design and implementation and in what way has the project contributed to greater consideration of gender aspects, (i.e., project team composition, gender-related aspects of pollution impacts, stakeholder outreach to women's groups, etc.)**

At the time of TE, the results of the project has not been as per the objectives set for the project.

At the level of UNDP, the project design has provided for mainstreaming UNDP's other priority areas of work like poverty alleviation, improved governance, gender equality, etc. However, there are no impact on any of the other development priority areas of the UNDP as none of the results of the project pertain to the other development priority areas of UNDP.

There are no gender-segregated indicators in the results framework of the project, except for the indicator for the number of beneficiaries for the project. One of the reason for this could be that the results framework has not included output level details in the results framework. The project implementation has realized the importance of gender mainstreaming in the waste management, accordingly, the project implementation sought to achieve gender equality through the empowerment of women.

5.8 Sustainability

The main questions for terminal evaluation are; (please see Annex B)

- **Are there financial risks that may jeopardize the sustainability of project outcomes?**
- **What is the likelihood of financial and economic resources not being available once GEF grant assistance ends?**
- **Are there social or political risks that may threaten the sustainability of project outcomes?**
- **What is the risk for instance that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained?**

- **Do the various key stakeholders see that it is in their interest that project benefits continue to flow?**
- **Is there sufficient public/stakeholder awareness in support of the project's long-term objectives?**
- **Do the legal frameworks, policies, and governance structures and processes within which the project operates pose risks that may jeopardize the sustainability of project benefits?**
- **Are requisite systems for accountability and transparency, and required technical know-how, in place?**
- **Are there ongoing activities that may pose an environmental threat to the sustainability of project outcomes?**

The achievement of results and Outcomes of the project has fallen short of the expectations set in the results framework. Thus, at TE, the deliberations on the sustainability of the results of the project is a contentious issues.

The project could not establish the pilot projects for biogas/electricity using waste. Also, establishment of such biogas based facilities, post implementation of the NAMA project is not envisaged. Although, the achievements of the project are much short of the expectations, some of the specific results of the NAMN project are as follows;

- Establishment of small institutional biogas plants at five institutions (one each in the five pilot cities)
- Establishment of Trommel mills at the MSW disposal/composting sites in three pilot cities.

As there are no results of the project, there are no risks to the sustainability of the results of the project. As far as the sustained operations of the trommel mills is concerned there are institutional and financial risks. Given the fact that in the institutional structure and the financials of the municipalities in the country is quite week, it is not clear now the maintenance requirements of the trommel mills in future will be meet. However, the operations of the small institutional biogas reactors is likely to sustain in the future.

Whatever little has been achieved by the NAMA project is unlikely to be sustained due to institutional and financial reasons. The results of the NAMA biogas project are Unlikely sustainable. **The sustainability of the achieved results (largely establishment of institutional biogas plants) of the project is rated**[22] **as likely.**

5.9 Impacts

The main questions for terminal evaluation are; (please see Annex B)

- **Whether, the project has demonstrated verifiable improvements in ecological status?**
- **Whether, the project has demonstrated verifiable reductions in stress on ecological systems through specified process indicators?**
- **What progress is being made towards the achievement of stress reduction and/or ecological improvement?**

The idea of the NAMA Biogas project was to establish pilot projects to produce biogas utilizing the MSW, industrial wastewater and sewage. The project was to also facilitate the establishment of more such biogas/electricity producing facilities by way of replication, wherein the successful demonstration of the concept, business model, and technology further facilitated by grants would have attracted the investment for the purpose.

The NAMA Biogas project has not been able to establish any waste-based biogas/electricity pilot projects. Also, the proposed grant funding for waste-based biogas plants could not be established. At the end of the NAMA project neither the pilot projects nor any replication biogas projects are expected. Thus, the objective of the NAMA biogas project to sustainably manage the waste while at the same time leading to mitigation of the emissions of GHG (due to avoidance of methane emissions and due to generation of electricity from renewable sources) could not be achieved. There are no verifiable

[22] Ratings for Sustainability: Likely (L): negligible risks to sustainability; Moderately Likely (ML): moderate risks; Moderately Unlikely (MU); significant risks; Unlikely (U): severe risks

improvements in ecological status due to the NAMA project. In the future as well there any reduction in ecological stress due to the NAMA project is not expected, except for some minor contributions due to the five small institutional biogas plants.

Once the five small institutional biogas plants start working, there will be some improvement in the ecological status due to a reduction in the consumption of grid electricity and fuel wood at the institutions where these biogas plants are being erected. However, given the scale of institutional biogas plants (each biogas plant of about 3.5 KW), intervention such improvements would be minor.

The NAMA project has also supported the establishment of trommel mills for screening manure after the composing of the MSW at the dump site in three cities. The operations of trommel mills may lead to a reduction in the human labour or screening of the manure and improve the quality of the manure, there would not be any ecological gain in terms of reduction in the emission of GHGs or other pollutants.

The impacts of the project are rated[23] as Minimal.

5.10 GEF Catalytic effect

One of the goals of the project was to put in place an enabling environment and scaled-up implementation of waste-based biogas/electricity in Uganda. For this provision was made in the project design for the replication of waste-based biogas/electricity facilities in other municipalities/cities of the country. To support the replication, the project design, apart from the successful demonstration of the pilots, has provided for grants fund to the investors. Outcome 3 and Outcome 4 of the project, was to support the replication of waste based biogas facilities in other cities of Uganda. The project implementation could not successfully carry out the activities meant for achieving the replication and scaling up of the interventions. Also, the project could not implement any pilot activities and other activities like making the concessional finance available.

[23] Rating for Impacts: Significant (S); Minimal (M); Negligible (N)

6. CONCLUSIONS AND RECOMMENDATIONS

The main questions for terminal evaluation are; (please see Annex B)

- **Did the project provide cost-effective solutions in order to address barriers?**
- **Are these solutions provided in an efficient way?**
- **What are the best and worst practices in addressing issues relating to relevance, performance and success?**
- **Corrective actions for the design, implementation, monitoring and evaluation of the project**
- **Actions to follow up or reinforce initial benefits from the project**
- **Proposals for future directions underlining main objectives**

6.1 Conclusions

The objective of the project was to support the management of waste through processing of waste to produce biogas and generate electricity. It was envisaged that the planned intervention, will lead to reduction in the emission of GHGs due to the avoidance of methane emissions, due to anaerobic fermentation of the organic waste and due to use of the biogas (a renewable source of energy) for generation of electricity. The development benefits of the project were; management of waste in a scientific and sustainable manner and increased availability of electricity. The project had the following four planned outcomes:

Outcome 1: Enhanced capacity of municipalities to develop waste management plans and manage municipal solid waste and wastewater in a more sustainable manner
Outcome 2: Biogas and WWT plants using MSW feedstock and sewage sludge procured and fully operational
Outcome 3: Biogas technology replicated in other potential municipalities with the help of a grant and technical assistance fund
Outcome 4: Lessons learnt and success of the demonstration projects supports replication and scaling up of project results

Except for some achievements under Outcome 1 of the project, there has been no achievement for any of the planned Outcomes of the Project. However, one of the issue is that while the capacity building efforts were directed at the management of MSW and the officials of municipalities, the pre-selected pilot projects (under Outcome 2) to demonstrate the technology and the business models were from industrial wastewater and sewage. Although, the third pilot project which was pre-selected at the project design stage pertained to gainful utilization of MSW using biogas technology, this pilot project could not get implemented. A mismatch between the type of biogas pilot projects and the intended interventions in the MSW sector reduced the utility of the results of Outcome 1 to a large extent. There are hardly any learning (in terms of technology, business models, management) which could be carried from the biogas pilot projects at Kakira Sugar and NWSC.

Under Outcome 2 pilot biogas plants using MSW and other waste were to be established. Three pilot projects activities were pre-selected at the time of project design. Two of these three pilot projects were either commissioned before the start date of the NAMA project or were at advanced stages of implementation. Due to this reason, at TE these two pilot project has not been considered at contribution by the NAMA project. The third pre-identified pilot project was for MSW based biogas plant at Kampala. The NAMA project supported the feasibility study for this pilot project, however, the project team did not take it further due to very high capital cost and the perception that it would not be possible to get a private sector investor to this pilot project. The lack of success for establishing the pilot projects is partly attributable to the deficiencies in the project design, which include absence of mechanism to approach the potential investors from private sector; absence of assessment of the potential investors at the project design; wrong selection of pilot projects; etc. Some of the other reasons for deficiencies in achieving of the results for outcome 2 includes; delays in the start of project implementation; lack of

involvement of the private sector bodies in project implementation. Although, at TE the pre-selected biogas projects at Kakira Sugar and NWSC are not being considered as pilot projects of the NAMA project, these two projects could still have acted as demonstration projects and helped in replications. But this did not happen as the biogas facilities at Kakira sugar and at NWSC don't use MSW at the substrate, also the technologies and business models for these two biogas plants were completely different.

Outcome 3 of the project was to follow from the success of Outcome 2 of the project. As was explained before, the pre-selected pilot/demonstration projects were not based of MSW for generation of biogas, whereas the replication of the pilot projects was sought for MSW based biogas generation facilities. The feasibility study for one of the pre-selected MSW to biogas project, revealed that the capital cost being very high, it would not be possible to get private sector investment for establishing MSW based biogas plants in the country. As there was no demonstration of the technology and baseness models for MSW to biogas facilities, and lack of potential private sector interest to invest, no activities/results under Outcome 3 of the project could happen. The adaptive measure of installing trommel mills at three of the pilot cities improved the level of utilization of funds meant for providing the grant support to the replication projects, but it did not help to improve the performance and overall results of the NAMA project in terms of the objectives of the NAMA project.

In the absence of success stories, knowledge products did get produced under Outcome 4 of the project. Some of the other planned activities to support replication and scaling up the results, like registration of the project as NAMA project at UNFCCC and preparation of Standardized Baseline (SBL) also could not be completed, partly due to the issues with the project design and partly due to project implementation issues. For example, the project team, attempted to hire a DOE (Designated Operation Entity of UNFCCC) for preparation of the SBL, whereas procedurally the SBLs are required to be prepared by the parties at their own (or by hiring consultants), and the role of DOE is to validate the SDLs prepared by the parties.

6.2 Recommendations

6.2.1 Corrective actions for design, implementation, monitoring, and evaluation of project

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
1	For the projects of this nature, where funding by the private sector is envisaged for the large scale infrastructure projects, strategy/approach to invite the investment needs to be a part of the project design and participation of the private sector (e.g. industry associate, trade associations) needs to be ensured during implementation of the project. Further the available investment opportunists needs to be widely amongst potential investors, interest to invest needs to be invited on a competitive bidding basis.	MSW to biogas project should be invited in a formal manner and on competitive basis rather on limited basis. . participation of private sector to implement the potential projects needs to be formalised	At the time of design of a future development project where investment by the private sector is envisaged	UNDP/National Counterparts
2	For the projects which involve introduction of the technology (like waste to biogas in the present case), which has not been experienced by the country in the past, it is important to take on board	Involvement of international consultants will ensure consideration of the best available technology and concepts, which will benefit the project. It will also help in	At the time of design of a future development project where investment by	UNDP/National Counterparts Project implementation units

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
	consultants/experts who have international exposure to the technology. Such experts can either be hired for individual tasks/activities or can be hired as technical advisors for specific period of project implementation.	updating the knowledge available with the national stakeholders.	the private sector is envisaged	
3	It is recommended that for feasibility studies, which involve technologies that are presently not in existence in the country, the procurement of consultancy should be global rather than national. (please see recommendation #2 and recommendation #4 as well)	This would have ensured that the best global technologies and practices were brought on board while carrying out the feasibility studies	At the time of implementation of a future project of this nature At the time of implementation of a future project of this nature	UNDP/National Counterparts
4	It is recommended that unless there are compelling reasons, the implementation arrangements made at the project design state should not be changed. The implementation arrangements and modalities are decided at the project design stage after due consultations with all the stakeholders and deliberations on the capacity of the implementation partners. To the extent possible, concerns and issues regarding implementation arrangements should be addressed at the project design stage	The change in implementation method at the time of project inception (from consultancies to government implementation) particularly for Outcome 1, did not go well as due to lack of in-country experience and exposure to biogas technologies and private sector participation in waste-to-energy projects.	At the time of implementation of a future project of this nature	UNDP Project Implementation Partners Project Management Unit
5	It is recommended that the project design and the results framework should have restricted itself to the use of MSW and other waste matter for the generation of biogas without implicitly providing for the use of biogas for electricity generation. The idea of the project was the management of waste, avoidance of GHG emissions, and gainful utilisation of the waste for energy.	In case the project design does not implicitly provide for the use of biogas for electricity generation, it will provide the desired flexibility to the project implementers for using the biogas for any end application, without compromising the objective of the project The project design may be left flexible in terms of the way to utilize the biogas e.g., cooking, lighting, electricity, etc.	At the time of design of a future development project of this nature	UNDP/National Counterparts

6.2.2 Actions to follow up or reinforce initial benefits from the project

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
6	Post successful demonstration of the concept, and peer learning. It is recommended that replication and scaling up of the institutional biogas plants be carried out.	The target institutions for replication and scaling up may include large shopping centers/malls, fruit and vegetable markets. This will partly reduce the overall load	As soon as possible	UNDP National Counterparts

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
		of waste required to be handled and managed by the civic authorities		
7	It is recommended to involve the private sector party to separate compost plastics and other inert materials at the three MSW dump sites, using the trommel mills supported by the NAMA project.	As an adaptive measure, a significant part of the project funds has been used for procurement and installation of trommel mills at three MSW dumpsites. Going forward the results of this activity will depend on the continued successful operations of these trommel mills. Given the issues with the financial and institutional capacities of the municipalities, the operation of these mills in the future may not be sustained unless actions are taken. One of such action could be the involvement of the private sector, wherein the machines may be leased or rented, or other appropriate financial/business models may be worked out.	As soon as possible	UNDP National Counterparts

6.2.3 Proposals for Future Directions Underlining main objectives

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
8	It is recommended that the private sector investment for the management of waste be invited by a competitive bidding process, wherein the selection of technology and processes for the treatment of waste is left to the investor. The party which asks for a minimum tipping fee and other concessions may be awarded the contract. The responsibility of the authorities be restricted to monitoring and verification of the work done as per the requirements	Efforts made in the past in Uganda to address the issue of management of MSW and other wastes and the related emissions of GHGs, by involving private sector investment have not been very successful. The efforts have been largely restricted to the collection of waste (from selected locations) by the private operators, and dumping it at the waste dumpsites One of the envisaged reasons for this is the lack of business/financial models.	As soon as possible	National Governments Municipalities

6.2.4 Best/worst practices in addressing issues relating to Relevance, performance, and success

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
9	Implementation arrangements for the implementation of GEF and other grant projects in Uganda may be deliberated upon, in terms of respective responsibilities of the	Implementation arrangements for the grant projects need to be made keeping in mind the respective capacity of the	At the time of design and implementation of the nest externally	UNDP National Counterparts

#	Recommendation	Rational and Description	Timing/Dates for Action	Responsible Party
	executing agencies and the national counterparts. Wherever required implementation support be provided by the executing agency and services of outside experts be taken for providing the required inputs.	participating institutions (implementation partners). The performance of the past projects to manage MSW has not been encouraging e.g. the CDM-PoA project for MSW to Compost in Uganda is in a bad state. Similarly, the PPA model which was tried in the past by the Kampala City for MSW got restricted to the collection of waste by small-time private operators. The critical aspect of treatment and safe disposal of MSW did not get addressed. There is a need to strengthen the institutional capacity of important government actors in the overall process of waste treatment and disposal.	funded development project	Project Implementation Team

ANNEX A: TERMS OF REFERENCE

Terms of Reference (ToR) - Terminal Evaluation for UNDP-supported GEF financed projects.

GENERAL INFORMATION

Project/Program Title	**NATIONALLY APPROPRIATE MITIGATION ACTION FOR IMPROVED WASTE MANAGEMENT AND BIOGAS PRODUCTION IN UGANDA**
Scope of Advertisement:	**International**
Type of Contract:	**Individual Consultant**
Post Type:	**International Consultant**
Duty Station:	**Home-based (with mission travel as may be required)**
Expected Areas of Travel:	**Selected Cities (Kampala, Mbale, Jinja, Mbarara and Masaka)**
Language of Communication:	**English**
Duration of Contract:	**30 working days spread over a period of three calendar Months**
Start Date:	**Immediately after Concluding Contract Agreement**

1. INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full- and medium-sized UNDP-supported GEF-financed projects are required to undergo a Terminal Evaluation (TE) at the end of the project. This Terms of Reference (ToR) sets out the expectations for the TE of the **PIMS 5574: Nationally Appropriate Mitigation Action for Integrated Waste Management and Biogas Production in Uganda**" implemented through the Ministry of Energy and Mineral Development and five cities of Kampala, Mbale, Jinja, Mbarara and Masaka. The five-year project started on 13th September 2018 through full implementation commenced in February 2019 with the project technical inception meeting currently in the third year of project implementation. The TE process must follow the guidance outlined in the document 'Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects'*:* *http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP*http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf*supportedGEF-financedProjects.pdf* .

2. PROJECT BACKGROUND AND CONTEXT

The Ministry of Energy and Mineral Development (MEMD) is implementing a Nationally Appropriate Mitigation Action (NAMA) on Integrated Waste Management and Biogas with funding from the Global Environment Facility and United Nations Development Program. The overall objective of the project is improved waste management practices in towns and municipalities through the introduction of integrated waste management, and deployment of biogas energy systems based on organic fraction of MSW, agro- processing waste (where combine with municipal wastes), sewerage sludge and wastewater for biogas energy generation.

This project aims to provide environmental benefits and reduce greenhouse gas emissions from improper and inadequate management and treatment of wastewater and organic waste in towns, municipalities, and agro-processing industry in Uganda. The project was expected to combine demonstration and investment in integrated waste treatment and biogas plants in agro processing

industry and municipalities (including biogas-based, on-grid electricity generation) with institutional strengthening, capacity building for improved waste management, and an improved regulatory framework so that interventions are sustainable and can be replicated in other municipalities and across agro-processing industry. It was expected that a total a total at least 2.90 MW of biogas-to-electricity demonstration plants would be installed, to produce about 20,300 MWh of electricity per year, with the annual GHG emission reductions of approximately 11,165 tons of CO2eq from producing renewable energy. Over the expected useful life of the biogas plants of 20 years, the direct GHG emission reduction from the GEF project from producing renewable electricity would be 223,300tonnes of CO2eq. The Lifetime greenhouse gases avoided will be from the generation of grid fed renewable electricity production and from methane reduction over the lifetime of investments.

Institutional framework
The Ministry of Energy and Mineral Development is the Implementing Entity of the project, and the project is anchored in the Renewable Energy Department. Other Responsible Partners of the project are National Environment Management Authority (NEMA) and National Water Sewerage Corporation, Electricity Regulatory Authority, Kakira Sugar Works, Kampala Capital City Authority, the Cities of Kampala, Mbarara, Mbale, Jinja, Masaka, Ministry of Water and Environment, Ministry of Local Government.

The project was designed to deliver the following outcomes:

1. **Outcome 1**: Establishing enabling market conditions, institutional strengthening and capacity building for improved waste management and promotion of MSW-based biogas systems.
2. **Outcome 2:** Biogas and WWT plants using MSW feedstock and sewage sludge procured and fully operational.
3. **Outcome 3:** Biogas technology replicated in other potential municipalities in the country based on lessons learnt and success of the demonstration.
4. **Outcome 4:** Replication and scaling up of project results supported by lessons learned and success of demonstration projects.

3. TE PURPOSE

The TE report will assess the achievement of project results against what was expected to be achieved and draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming. The TE report promotes accountability and transparency and assesses the extent of project accomplishments.

The TE will document lessons learned from the implementation of the project's activities and the outcomes achieved and provide specific recommendations that will be useful for similar projects in the future. The TE should contribute to generation of new knowledge for, increase capacity of, and mobilize all stakeholders, from the donors to the implementing partners and the beneficiaries towards aggressively pursuing similar initiatives to achieve the project's long-term goal of integrated wastes management in the local development planning processes.

4. TE APPROACH & METHODOLOGY

The TE report must provide evidence-based information that is credible, reliable, and useful.

The TE team will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Social and Environmental Screening Procedure/SESP) the Project Document, project reports including annual PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based evaluation. The TE team will review the baseline and midterm GEF focal area Core Indicators/Tracking Tools submitted to the GEF at the CEO

endorsement and midterm stages and the terminal Core Indicators/Tracking Tools that must be completed before the TE field mission begins.

The TE team is expected to follow a participatory and consultative approach ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), Implementing Partners, the UNDP Country Office(s), the Regional Technical Advisor, direct beneficiaries, and other stakeholders.

Engagement of stakeholders is vital to a successful TE. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to: Ministry of Energy and Mineral Development, Ministry of Water and Environment, UNDP, National Water and Sewerage Corporation, project coordinators from five cities of Kampala, Mbale, Jinja, Mbarara and Masaka, Urban Authorities Association of Uganda, the Project Board, Project Stakeholders, and academia. Additionally, the TE team is expected to conduct field missions to *Kampala, Mbale, Jinja, Mbarara and Masaka*, including the following project sites: Kakira Sugar Works Ltd and National Water and Sewerage Corporation and Kitezi Landfill.

The specific design and methodology for the TE should emerge from consultations between the TE team and the above-mentioned parties regarding what is appropriate and feasible for meeting the TE purpose and objectives and answering the evaluation questions, given limitations of budget, time and data. The TE team must use gender-responsive methodologies and tools and ensure that gender equality and women's empowerment, as well as other cross-cutting issues and SDGs are incorporated into the TE report.

The final methodological approach including interview schedule, field visits and data to be used in the evaluation must be clearly outlined in the TE Inception Report and be fully discussed and agreed between UNDP, stakeholders, and the TE team.
The final report must describe the full TE approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the evaluation.

5. DETAILED SCOPE OF THE TE

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (see ToR Annex A). The TE will assess results according to the criteria outlined in the Guidance for TEs of UNDP-supported GEF-financed Projects *http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP*http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf*supportedGEF-financedProjects.pdf* .

The Findings section of the TE report will cover the topics listed below. A full outline of the TE report's content is provided in ToR Annex C. The asterisk "(*)" indicates criteria for which a rating is required.

Findings

i. Project Design/Formulation

- National priorities and country drivenness
- Theory of Change
- Gender equality and women's empowerment
- Social and Environmental Standards (Safeguards)
- Analysis of Results Framework: project logic and strategy, indicators
- Assumptions and Risks
- Lessons from other relevant projects (e.g. same focal area) incorporated into project design
- Planned stakeholder participation.

- Linkages between project and other interventions within the sector
- Management arrangements

ii. Project Implementation

- Adaptive management (changes to the project design and project outputs during implementation)
- Actual stakeholder participation and partnership arrangements
- Project Finance and Co-finance
- Monitoring & Evaluation: design at entry (*), implementation (*), and overall assessment of M&E (*)
- Implementing Agency (UNDP) (*) and Executing Agency (*), overall project oversight/implementation and execution (*)
- Risk Management, including Social and Environmental Standards (Safeguards)

iii. Project Results

- Assess the achievement of outcomes against indicators by reporting on the level of progress for each objective and outcome indicator at the time of the TE and noting final achievements.
- Relevance (*), Effectiveness (*), Efficiency (*) and overall project outcome (*)
- Sustainability: financial (*) , socio-political (*), institutional framework and governance (*), environmental (*), overall likelihood of sustainability (*)
- Country ownership
- Gender equality and women's empowerment
- Cross-cutting issues (poverty alleviation, improved governance, climate change mitigation and adaptation, disaster prevention and recovery, human rights, capacity development, South-South cooperation, knowledge management, volunteerism, etc., as relevant)
- GEF Additionality
- Catalytic Role / Replication Effect
- Progress to impact

Main Findings, Conclusions, Recommendations and Lessons Learned

- The TE team will include a summary of the main findings of the TE report. Findings should be presented as statements of fact that are based on analysis of the data.
- The section on conclusions will be written considering the findings. Conclusions should be comprehensive and balanced statements that are well substantiated by evidence and logically connected to the TE findings. They should highlight the strengths, weaknesses, and results of the project, respond to key evaluation questions, and provide insights into the identification of and/or solutions to important problems or issues pertinent to project beneficiaries, UNDP and the GEF, including issues in relation to gender equality and women's empowerment.
- Recommendations should provide concrete, practical, feasible and targeted recommendations directed to the intended users of the evaluation about what actions to take and decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation.
- The TE report should also include lessons that can be taken from the evaluation, including best practices in addressing issues relating to relevance, performance and success that can provide knowledge gained from the circumstance (programmatic and evaluation methods used, partnerships, financial leveraging, etc.) that are applicable to other GEF and UNDP interventions. When possible, the TE team should include examples of good practices in project design and implementation.
- It is important for the conclusions, recommendations and lessons learned of the TE report to incorporate gender equality and empowerment of women.

The TE report will include an Evaluation Ratings Table, as shown below:

ToR Table 2: Evaluation Ratings Table for (project title)

Monitoring & Evaluation (M&E)	Rating
M&E design at entry	
M&E Plan Implementation	
Overall Quality of M&E	
Quality of UNDP Implementation/Oversight	
Quality of Implementing Partner Execution	
Overall quality of Implementation/Execution	
Relevance	
Effectiveness	
Efficiency	
Overall Project Outcome Rating	
Financial resources	
Socio-political/economic	
Institutional framework and governance	
Environmental	
Overall Likelihood of Sustainability	

6. TIMEFRAME

The total duration of the TE will be approximately **30 working days** over a time period of *16 weeks* starting on *15 November 2023*. The tentative TE timeframe is as follows:

Timeframe	Activity
15/11/2023	Application closes
20/11/2023	Selection of TE team
03/12/2023	Preparation period for TE team (handover of documentation)
15/12/2023 (3 working days equivalent)	Document review and preparation of TE Inception Report
20/12/2023 (2 working days equivalent)	Finalization and Validation of TE Inception Report; latest start of TE mission
14/01/2024 (13 working days equivalent)	TE mission: stakeholder meetings, interviews, field visits, etc.
14/01/2024	Mission wrap-up meeting & presentation of initial findings; earliest end of TE mission
10/02/2024 (9 working days equivalent)	Preparation of draft TE report
12/02/2024	Circulation of draft TE report for comments
25/02/2024 (2 days equivalent)	Incorporation of comments on draft TE report into Audit Trail & finalization of TE report
30/02/2024	Preparation and Issuance of Management Response
30/01/2024 (1 day equivalent)	Concluding Stakeholder Workshop (optional)
15/03/2024	Expected date of full TE completion

Options for site visits should be provided in the TE Inception Report.

7. TE DELIVERABLES

#	Deliverable	Description	Timing	Responsibilities
1	TE Inception Report	TE team clarifies objectives,	No later than 2 weeks before the	TE team submits Inception Report to
		methodology and timing of the TE	TE mission: *(by 15/12/2023)*	Commissioning Unit and project management
2	Presentation	Initial Findings	End of TE mission: *(14/01/2024)*	TE team presents to Commissioning Unit and project management
3	Draft TE Report	Full draft report *(using guidelines on report content in ToR Annex C)* with annexes	Within 3 weeks of end of TE mission: *(by 08/02/2024)*	TE team submits to Commissioning Unit; reviewed by RTA, Project Coordinating Unit, GEF OFP
5	Final TE Report* + Audit Trail	Revised final report and TE Audit trail in which the TE details how all received comments have (and have not) been addressed in the final TE report *(See template in ToR Annex H)*	Within 1 week of receiving comments on draft report: *(by 25/02/2024)*	TE team submits both documents to the Commissioning Unit

*All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.

8. TE ARRANGEMENTS

The principal responsibility for managing the TE resides with the Commissioning Unit. The Commissioning Unit for this project's TE is the UNDP – Uganda Country Office.
The Commissioning Unit will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the TE team. The Project Team will be responsible for liaising with the TE team to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

9. TE TEAM COMPOSITION

A team of two independent evaluators will conduct the TE – one team leader, (international consultant with experience and exposure to projects and evaluations in other regions) and one local consultant from Uganda. The team leader will be responsible for the overall design and writing of the TE report, etc.) and provide technical oversight to the completion of the assignment. The National Consultant will be responsible for the assessing emerging trends regarding the policy, legal and regulatory framework, budget allocations, capacity building, and also work with the project management team in availing the TE itinerary.

The evaluator(s) cannot have participated in the project preparation, formulation and/or implementation (including the writing of the project document), must not have conducted this

project's Mid-Term Review and should not have a conflict of interest with the project's related activities.

The selection of evaluators will be aimed at maximizing the overall "team" qualities in the following areas:

The weight to all preferred qualifications apart from the minimum academic qualifications and experience are shown in the Criteria for Evaluation of Proposal – Section 13.

Education

Advanced University Degree (Masters or equivalent) in natural sciences; with a specialization in Renewable Energy, Energy Economics, Environmental engineering, Climate change mitigation (non-AFOLU related), or any other closely related field

Experience

- Experience in relevant technical areas of natural resources management, renewable energy development or wastes management; (at least 10 years and 5 GEF projects for team leader and 5 years and 1 GEF project for local expert);
- Relevant experience with results-based management evaluation methodologies and applying SMART indicators and reconstructing or validating baseline scenarios of projects focusing on renewable energy development, energy recovery from waste, climate change mitigation, (non AFOLU related), (at least 10 years for team leader and 5 years for local expert), including at least 5 GEF projects for team leader and 1 GEF project for local expert.
- Competence in adaptive management, as applied to energy and waste management projects.
- Experience in working in the East African region and familiarity with Uganda's development, energy, climate change and waste management policies and other relevant policy frameworks (5 years for team leader);
- Demonstrated understanding of issues related to gender and energy/waste management, experience in gender responsive evaluation and analysis.
- Excellent communication skills.
- Demonstrable analytical skills.
- Project evaluation/review experience within United Nations system will be considered an asset.

Language

- Fluency in written and spoken English.

10. EVALUATOR ETHICS

The TE team will be held to the highest ethical standards and is required to sign a code of conduct upon acceptance of the assignment. This evaluation will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'. The evaluator must safeguard the rights and confidentiality of information providers, interviewees, and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The evaluator must also ensure security of collected information before and after the evaluation and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the evaluation process must also be solely used for the evaluation and not for other uses without the express authorization of UNDP and partners.

11. PAYMENT SCHEDULE

- 10% payment upon satisfactory delivery of the initial assessment and the final TE Inception Report and approval by the Commissioning Unit
- 40% payment upon satisfactory delivery of the draft TE report to the Commissioning Unit
- 50% payment upon satisfactory delivery of the final TE report and approval by the Commissioning Unit and RTA (via signatures on the TE Report Clearance Form) and delivery of completed TE Audit Trail

Criteria for issuing the final payment of 40%:

- The final TE report includes all requirements outlined in the TE TOR and is in accordance with the TE guidance.
- The final TE report is clearly written, logically organized, and is specific for this project (i.e. text has not been cut & pasted from other TE reports).
- The Audit Trail includes responses to and justification for each comment listed.

12. APPLICATION PROCESS

Applicants are requested to apply online at https://procurement-notices.undp.org. Individual consultants are invited to submit technical and financial proposals as applications together with their CV for these positions. UNDP applies a fair and transparent selection process that will consider the competencies/skills of the applicants as well as their financial proposals. Qualified women and members of social minorities are encouraged to apply.

Qualified Individual Consultant is expected to submit both the Technical and Financial Proposals.

Recommended Presentation of Proposal:

a) **Letter of Confirmation of Interest and Availability** using the template provided by UNDP;
b) **CV** and a **Personal History Form** (P11 form);
c) Brief description **of approach to work/technical proposal** of why the individual considers him/herself as the most suitable for the assignment, and a proposed methodology on how they will approach and complete the assignment; (max 1 page)
d) **Financial Proposal** that indicates the all-inclusive fixed total contract price and all other travel related costs (such as flight ticket, per diem, etc), supported by a breakdown of costs, as per template attached to the Letter of Confirmation of Interest template. If an applicant is employed by an organization/company/institution, and he/she expects his/her employer to charge a management fee in the process of releasing him/her to UNDP under Reimbursable Loan Agreement (RLA), the applicant must indicate at this point, and ensure that all such costs are duly incorporated in the financial proposal submitted to UNDP.

Note: Individuals on this contract are not UN staff and are therefore not entitled to DSAs. All living allowances required to perform the demands of the ToR must be incorporated in the financial proposal, whether the fees are expressed as daily fees or lump sum amount.

All application materials should be submitted online through Quantum for "Consultant for Terminal Evaluation of *"Nationally Appropriate Mitigation Actions (NAMA) on Integrated Waste Management and Biogas Production in Uganda Project"* , for any inquiry: *ug.procurement@undp.org* by 12:00Hrs, 25th October 2023 *(Kampala Time)*. Incomplete applications will be excluded from further consideration.

13. CRITERIA FOR EVALUATION OF PROPOSAL

Only those applications which are responsive and compliant will be evaluated. Offers will be evaluated according to the Combined Scoring method – where the educational background and experience on similar assignments will be weighted at 70% and the price proposal will weigh as 30%

of the total scoring. The applicant receiving the Highest Combined Score that has also accepted UNDP's General Terms and Conditions will be awarded the contract.

Evaluation Criteria	Weight	Max. Point
Technical Competence (based on CV, Proposal and interview (if required)	**70%**	100
Minimum educational background		15
Understanding the Scope of Work; comprehensiveness of the methodology/approach; and organization & completeness of the proposal. Analytical and communication skills demonstrated in the proposal.		30
Relevant experience in technical areas of natural resources management, renewable energy development or wastes management		15
Experience in monitoring and evaluation of projects (including GEF projects) in the areas of natural resources management, renewable energy development or wastes management		15
Regional experience		10
Additional competences (gender and energy/waste management, adaptive management)		15
Financial (Lower Offer/Offer X100)	**30%**	30
Total Score	**Technical Score * 70% + Financial Score *30%**	

** It is a mandatory criterion and shall have a minimum of 70%*

ANNEX B: TERMINAL EVALUATION CRITERIA AND THE QUESTIONS

Before undertaking the Terminal Evaluation, an Inception Report was presented, including the proposed tasks, activities, and deliverables, as well as a table of main evaluation questions that need to be answered to determine and assess project results. The evaluation/review criteria and questions are presented in the Table below.

Contents	Main questions and Terminal Evaluation Scope
• Title page with basic report information • Table of contents • Acronyms and abbreviations	
Executive Summary • Project Summary Table • Project Description (brief) • Evaluation Rating Table • Summary of conclusions, recommendations and lesson	
1. Introduction • Context; purpose of the Terminal Evaluation and objectives • Scope and methodology of the Terminal Evaluation • Structure of the Terminal Evaluation Report	
2. Project description and development context • Project description and development context (objectives, project participants, objectives and main outcomes; Project duration and timing) • Problems that the project sought to address • Immediate and development objectives of the project • Baseline indicators established • Main stakeholders • Expected Results	
3. Findings: Project Design and Formulation	
• Analysis of LFA/Results Framework • Assumptions and Risks • Lessons from other relevant projects • Planned stakeholder participation • Replication approach • UNDP comparative advantage • Linkages between project and other interventions within the sector • Management arrangements	• Were the project's objectives and components clear, practicable and feasible within its time frame? • Were the capacities of the executing institution(s) and its counterparts properly considered when the project was designed? • Were lessons from other relevant projects properly incorporated in the project design? • Were the partnership arrangements properly identified and roles and responsibilities negotiated prior to project approval? • Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place at project entry? • Were the project assumptions and risks well-articulated in the PIF and project document? • Whether the planned outcomes were "SMART"?
4. Findings: Project Implementation	
4.1 Adaptive management	***ADAPTIVE MANAGEMENT*** • Did the project undergo significant changes as a result of recommendations from the mid-term review? Or as a result of other review procedures? Explain the process and implications. • If the changes were extensive, did they materially change the

Contents	Main questions and Terminal Evaluation Scope
	expected project outcomes? • Were the project changes articulated in writing and then considered and approved by the project steering committee? • Whether feedback from M&E activities was used for adaptive management? • Whether changes were made to project implementation as a result of the MTR recommendations?
4.2 Partnership arrangements	***PARTNERSHIP ARRANGEMENT*** • Were there adequate provisions in the project design for consultation with stakeholder? • Whether effective partnerships arrangements were established for implementation of the project with relevant stakeholders involved in the country/region, including the formation of a Project Board? • Whether lessons from other relevant projects incorporated into project implementation?
4.3 Project Finance	***PROJECT FINANCE / CO-FINANCE*** • Whether there was sufficient clarity in the reported co-financing to substantiate in-kind and cash co-financing from all listed sources. • What are the reasons for differences in the level of expected and actual co-financing? • To what extent project components supported by external funders were well integrated into the overall project? • What is the effect on project outcomes and/or sustainability from the extent of materialization of co-financing? • Whether there is evidence of additional, leveraged resources that have been committed as a result of the project?
4.4 Monitoring and evaluation: design at entry	***PROJECT MONITORING & EVALUATION (AT DESING)*** • Is the M&E plan well-conceived at the design stage? • Is M&E plan articulated sufficient to monitor results and track progress toward achieving objectives? • Was the M&E plan sufficiently budgeted and funded during project preparation and implementation? • How effective are the monitoring indicators from the project document for measuring progress and performance;
4.5 monitoring and evaluation: implementation	***MONITORING & EVALUATION (IMPLEMENTATION)*** • Whether the logical framework was used during implementation as a management and M&E tool? • What has been the level of compliance with the progress and financial reporting requirements/ schedule, including quality and timeliness of reports; • What has been effectiveness of the monitoring reports and evidence that these were discussed with stakeholders and project staff; • What is the extent to which follow-up actions, and/ or adaptive management, were taken in response to monitoring reports (APR/PIRs); • Whether APR/PIR self-evaluation ratings were consistent with the MTR and TE findings. If not, were these discrepancies identified by the project steering committee and addressed?
4.6 UNDP and Implementing Partner implementation / execution coordination, and operational issues	***GEF IMPLEMENTING AGENCY EXECUTION - UNDP*** • Whether there was an appropriate focus on results • Was there adequate UNDP support to the Implementing Partner and project team • Quality and timeliness of technical support to the Executing Agency

Contents	Main questions and Terminal Evaluation Scope
	and project team • Were the management inputs and processes, including budgeting and procurement adequate
5. Findings: Project Results	
5.1 Overall results	***OVERALL RESULS*** • What is the achievement of the objectives against the end of the project values of the log-frame indicators for project objectives, outcomes, outputs, indicating baseline situation and target levels, as well as position at the close of the project? • What are the achievements /Results in terms of contribution to sustainable development benefits, as well as global environmental benefits (direct and indirect GHG emission reduction)? • How does the GEF Tracking Tool/GEF Core indicators at the Baseline and the one completed right before the Midterm Review with that Prepared at the time of Terminal Evaluation compare?
5.2 Relevance	***RELAVENCE*** • To what extent the activity is suited to local and national development priorities and organizational policies, including changes over time. • To what extent the project is in line with UNDP Operational Programs or the strategic priorities under which the project was funded?
5.3 Effectiveness & Efficiency	***EFFECTIVENESS*** • To what extent the objectives, expected outcomes and outputs have been achieved? • To what extent the results have been delivered with the least costly resources possible? • What are the positive and negative, foreseen and unforeseen changes to and effects produced by a development intervention?
5.4 Country ownership	***COUNTRY OWNERSHIP*** • Was the project concept in line with development priorities and plans of Uganda? • Were the relevant country representatives from government and civil society involved in project implementation, including as part of the project steering committee? • Was an inter-governmental committee given responsibility to liaise with the project team, recognizing that more than one ministry should be involved? • Have the government(s), enacted legislation, and/or developed policies and regulations in line with the project's objectives?
5.5 Mainstreaming	***MAINSTREAMING*** • How the project is successfully mainstreaming other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and women's empowerment. • Whether it is possible to identify and define positive or negative effects of the project on local populations (e.g., income generation/job creation, improved natural resource management arrangements with local groups, improvement in policy frameworks for resource allocation and distribution, regeneration of natural resources for long term sustainability). • Do the project objectives conform to agreed priorities in the UNDP country programme document (CPD) and country programme action plan (CPAP)?

Contents	Main questions and Terminal Evaluation Scope
5.6 Sustainability 5.7 Impact	• Whether there is evidence that the project outcomes have contributed to better preparations to cope with natural disasters. • Whether gender issues had been taken into account in project design and implementation and in what way has the project contributed to greater consideration of gender aspects, (i.e., project team composition, gender-related aspects of pollution impacts, stakeholder outreach to women's groups, etc.) ***SUSTAINABILITY*** ***Financial risks:*** • Are there financial risks that may jeopardize the sustainability of project outcomes? • What is the likelihood of financial and economic resources not being available once GEF grant assistance ends? ***Socio-economic risks:*** • Are there social or political risks that may threaten the sustainability of project outcomes? • What is the risk for instance that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? • Do the various key stakeholders see that it is in their interest that project benefits continue to flow? • Is there sufficient public/stakeholder awareness in support of the project's long-term objectives? ***Institutional framework and governance risks:*** • Do the legal frameworks, policies, and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits? • Are requisite systems for accountability and transparency, and required technical knowhow, in place? ***Environmental risks:*** • Are there ongoing activities that may pose an environmental threat to the sustainability of project outcomes? ***IMPACT*** • Whether, the project has demonstrated verifiable improvements in ecological status? • Whether, the project has demonstrated verifiable reductions in stress on ecological systems through specified process indicators? • What progress is being made towards achievement of stress reduction and/or ecological improvement?
6. Conclusions and Recommendations	
	• Did the project provide cost-effective solutions in order to address barriers? • Are these solutions provided in an efficient way? • What are the best and worst practices in addressing issues relating to relevance, performance and success? • Corrective actions for the design, implementation, monitoring and evaluation of the project • Actions to follow up or reinforce initial benefits from the project • Proposals for future directions underlining main objectives
Annexes • TOR • List of people interviewed • Documents reviewed and bibliography	

Contents	Main questions and Terminal Evaluation Scope
• Terminal Evaluation evaluative matric (criteria, questions, indicators) • Signed UNEG code of conduct forms • Other information, as needed	

ANNEX C: DOCUMENTS REVIEWED

Project Documents	
	Project Document
	PIF Request Document
	GEF Review Sheet
	STAP Review
	GEF Core Indicators
	CDP Uganda 2021-25
	Endorsed Memorandum of Understanding
	Project Inception Report
	MTR Report
	Management Response to MTR Report
Board Meetings	
	Minutes for Board Meeting 2019
	Minutes of Board Meeting – Aug 2020
	Mid-Year 2021
	Year End 2021
	Mid-Year 2022
	Year End 2022
	Year End 2023
Project Implementation Report (PIR)	
	PIR 2020
	PIR 2021
	PIR 2022
	PIR 2023
Annual Progress Report (APR)	
	APR 2019
	APR 2020
	APR 2022
Quarterly Reports	
	Q1 2020
	Q2 2020
	Q2 2021
	Q1 2022
Combined Delivery Reports (CDR)	
	CDR 2019-2020
	CDR 2021
	CDR 2022
Project Technical Committee	
	4th Session PTC Minutes October 2020
	Minutes for ninth PTC April 22
	Minutes For Technical Committee Meeting For Review Of The Draft Report For Waste Flow And Characterization Studies For Energy Generation In Mbarara City
	Minutes For Technical Review Meeting Of The Draft Report For Waste Flow And Characterization Studies For Energy Generation In Mbale City
	Presentation 8th PTC NAMA Biogas
	Report for Local benchmarking visit for GKMA TWG
	Report for the first quarterly meeting for GKMA TWG
	TWG Minutes for meeting with GGGI
TORs for Consultancies	
	Revised TORs for training on biogas technology-Final version

	Specifications and BOQs biogas plant construction
	TOR for feasibility KCCA FINAL
	TOR for feasibility studies NWSC FINAL
Outcome 1	
	Site Visit Reports - 2019 • Jinja • Masaka • Mbale • Mbarara Project Entry Meeting - 2019 • Jinja • Mbale • Mbarara • Masaka Report on Policy Workshop in Entebbe Activity Reports – 2020 • Report On Raising Awareness Amongst 12 Cities And Urban Authorities – Dec 2020 • Workshop report – Jinja • Workshop report – KCCA • Workshop report – Masaka • Workshop report Mbale • Workshop report Mbarara • Training of Promotors – Jinja • Training of promotors – KCCA • Waste Management Taring – Mbarara • Waste Management Training - Jinja • Waste Management taring – Masaka
	National Biogas Strategy and Action Plan
	Report on Biogas Strategy
	Stakeholder Consultation – Biogas strategy
	Ordinance on Waste Management • Final Ordinance Document –Masaka • Ordinance Formulation Jinja • Ordinance formulation Kampala • Ordinance Formulation Mbara • Ordinance Formulation Masaka • Ordinance Mbarara
	Field report training of stakeholder in biogas production technology
	Minutes for training workshop for the MRV mechanism on GHG emissions from waste
	National Training And User Manual For Sorting Municipal Solid Waste
	GKMA Waste Management Report
	Multi stakeholder platform
	Simplified document for Renewable Energy Platform
	Supply and Demand Modelling Report
Outcome 2	
	Jinja City Survey Report Final
	Jinja Site Assessment report for biogas plant
	Minutes draft report Jinja Waste flow study
	Minutes for the final report for Jinja waste flow study
	Feasibility Study Report – KCCA
	Follow up meeting KCCA on Feasibility Study

	Minutes of Progress on Feasibility Study
	Site Assessment KCCA – Installation of Mobil Trommel Machine
	Site Selection report for KCCA Biogas to electricity plant
	Masaka City Survey Report
	Minutes Draft report for waste flow study
	Minutes Final report – Masaka waste flow study
	Site selection report Masaka Biogas Plant
	Report on Waste Characterization – Mbale- Jan 2023
	Mbale Site Assessment for biogas plant
	Minutes final report Mbale Waste flow study
	Site assessment Mbale - Installation of mobile trommel compost sorting machine
	Report on Waste Characterization Mbarara Dec 2023
	Minutes final report Mbarara Waste flow and characterization study
	Monitoring report for Mbarara City waste bunkers
	Report for Stakeholders Meeting on Waste bunkers in Mbarara City
	Site assessment Mbarara - Installation of mobile trommel compost sorting machine
	Site selection report - Mbarara Biogas plant
	ESIA Certificate biogas to electricity plant
	ESIA Certificate NWSC
	Final ESIA Biogas to Electricity plant at Kiteezi
	Final Report Environmental and Social Impact Assessment ESIA Nakivubo Biogas Enhancement
	Final Specifications and BOQs biogas plant construction
	Minutes for meeting with ERA, NEMA, KCCA, NWSC
	Monitoring report for Mbarara City waste bunkers
Outcome 4	
	Final MRV_ Mechanism
	Minutes draft report and Implementation strategy for MRV Mechanism
	Updated Standardised Baseline on Industrial Wastewater in sugar industries
	Updated Standardised Baseline on Municipal Wastewater
Lesson Learnt Reports	
	Lessons Learnt Report 2022
	Lessons Learnt report 2023
	Summary of Lessons learned MTR
	Lessons Learnt Studies – Lugazi Model
Other Documents	
	NAMA Design Guidance – 2016, UNFCCC
	Communication Strategy Report
	Gender Management Strategy and Action Plan
	Gender Mainstreaming Strategy and Costed Action Plan
Additional Documents (following additional documents were shared by the project team after submission of the Draft TE report	
	Activity Reports for Enhancing Capacity of Cities to Undertake Sensitization - Jinja City - KCCA - Masaka City - Mbale City - Mbarara - Training of Promoters – Jinja - Training promoters for KCCA
	Increased Interest by Private Sector Companies

	- Brief senjin G&E - Global Gases Group - Global Gases Group 2 - Letter North – Sounth Linkages - Minutes Sejin G&E - North south Linkages - RIC Energy - Synthetic Oil
Additional Documents submitted after submission of second version of the final TE report	
	• Concepts ○ Budget template **– *Comment* -** *This is a filled in template by FAO for submitting development project proposals to Climate and Clean Air Coalition (CCAC). The submitted proposal is for the institutional biogas reactors for latrines in schools etc. Under Outcome 3, the idea of the project concept is the MSW based Biogas projects, which are ready for implementation. (Please see para 138 to para 141 of the project document). This document is not related to what was targeted to be achieved under the NAMA project* ○ Funding application form **- Comment -** *This is a proposal submitted by Global Green Growth Institute (GGGI) to Mitigation Action Facility for funding support for a development project. The project pertains to biogas generation using MSW. This document is not related to what was targeted to be achieved under the NAMA project* ○ Reducing GHG Emissions through waste to energy in Uganda - Waste to Electricity concept for MSW submitted to ministry of Finance. ***Comments -*** *This is an undated document. The document details out the funding request to the Ministry of Finance for implementation of Biogas to Electricity pilot projects in the five cities (these five cities were the pilot cities for the NAMA project).* ○ The request for funds also includes the funds required to establish a bio-energy lab. • Circular Solutions to Plastic pollution EPI. This is an EOI for a proposed GEF project for management of the plastic waste**. *Comment*** *– It is not related to the NAMA Project*
Additional Documents Submitted after submission of second version of final TE report	
	• Co-financing Tables
Additional Documents Submitted after submission of third version of final TE report	
	Co-Financing letters from the project document
	• MINISTRY OF ENERGY AND MINERAL DEVELOPMENT- REC22 & EXPO Report • Renewable Energy Conference 2023and Expo - Report

ANNEX D: FIELD VISITS AND LIST OF PEOPLE INTERVIEWED

Date	Activity	Participants
Day 1, 26 March 2024, Tuesday, Arrival of Dinesh Aggarwal (International Consultant) at Kampala, Uganda		
Day 2, 27 March 2024, Wednesday		
	Meeting with Project Manager	Ms. Miria Anomot
	Meeting with UNDP Country Office Programme Officer	Mr. Michael Kiza
	Meeting with Environment Officers from Cities	Ms Nyarib Rhoda – Principal Environment Office – Mbale Ms. Nabadda Pavnine – Environment Officer-Masaku City
	Meeting with the Officials of Kakira Sugar (Pilot Project)	Mr Sunil Agrawal
	Meeting with officials of Implementing Agency – Ministry of Energy and Mineral Development	Dr Bvian E Isabirye - Commissioner
Day 3, 28 March 2024, Thursday		
	Officials of the Implementing Partners	Mr Michael Ahimbisibwe – Acting Principal Energy Officer and Project coordinator of NAMA Biogas project
	City Natural Resources officer– Jinja City	Eenest Nabihamba
Day 4,	**29 March 2024, Friday**	Good Friday – Non-Working day
Day 5,	**30 March 2024, Saturday**	Non-Working day
Day 6	**31 March 2024, Sunday**	Non-Working day
Day 7,	**01 April 2024, Monday**	Non-Working day
	Travel to Mable	
Day 8, 02 April, Tuesday		
	Meeting with the City Officials	Mr Ocln Ambroje
	Visit to Institutional Biogas Plant at Nakaloke Secondary School - Mbale	Mr. Ssendege Abubaker, School Focal Person and Teacher
	Visit to Dump MSW Site Mbale	
	Visit to the office of Waste Collectors (Orient City Cleaners Limited) - Mbale	Mr. Maqcunbv Latibu
	Travel to Jinja	
	Consultations with City Officials and other stakeholders in Jinja	• Mr Peter Nawerere, Deputy Town Clerk • Mr Mulondo Moss – Jinja City Development Forum • Mr Isiko Jowell Kirya – Jinja City Development Forum • Mr A J Benjamin – Jinja City Development Forum • Mr Keneth Nandela – Health Inspector –Jinja City
	Visit to MSW Dump Site	
	Visit to newly Trommel Mill	
	Visit to Jinja College and Institutional Biogas Plant	
	Travel to Kampala	
Day 9, 03 April 2024, Wednesday		
	Travel to Masaka	
	Meeting with the Waste Collector – Eco Brixs	Ms Mirembe Bashira
	Meeting with officials of Action for Climate Action – NGO provides training to community for climate action	
	Visit to the Institutional Biogas Plant in Masaka Secondary School	Mr Bakawa Innocent – Focal Person for Biogas project Mr Mpungu Neusokaa - Head Teacher
	Meeting with Principal Health Officer - Masaka	Mr Mameri Musa
	Travel to Kampala	
Day 10, 04 April 2024, Thursday		
	Electricity Regulatory Authority, Kampala	Mr Peter Kityo – Manager Environment Monitoring and Compliance
	Kampala Capital City Authority	Joel Kagina Mwesinue – Project Coordinator
	Kakira Sugar – Official of the Pilot project	Mr Sunil Agarwal
Day 11, 05 April 2024, Friday		

Date	Activity	Participants
	National Water and Sewage Corporation, Kampala	Ms Scovia Owomugisha – Plant Manager Mr Mvgagga John – Engineer (biogas)
	National Water and Sewage Corporation, Kampala	James Miiro Maiteki – Sr. Manager – Sewage Services
Day 12, 06 April 2024, Saturday		
	Departure of International Consultant	

ANNEX E: SIGNED UNEG CODE OF CONDUCT FORMS

Evaluators/reviewers:

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, minimise 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 wrong doing 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 limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation/reviewer Consultant Agreement Form

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

Name of Consultant: Dinesh Aggarwal

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

(Dinesh Aggarwal)
21 August 2024

ANNEX F: TE REPORT AUDIT TRAIL

Audit Trail: Terminal Evaluation of the Project Terminal Evaluation Report 'Nationally Appropriate Mitigation Action for Integrated Waste Management and Biogas Production in Uganda' (GEF Project ID: 9210, UNDP PIMS Project ID: 5574)

The following comments were provided by the PMU on the draft Terminal Evaluation Report on 06 June 2024, which was followed up with a meeting on 11 June 2024. Some of the comments provided during the meeting and the minutes of the meeting are also included in the Audit Trail. The comments are referenced by the institution ("Author" column) and the comment number ("#" column).

Additional documents were shared on 18 June 2024. An additional set of comments were shared on 20 June 2024

Based on these comments and suggestions the TE report was updated by the TE team leading to final TE report.

Post finalization of the TE report, further comments (comment # 36 to #42) and suggestions were received on 05 August 2024

The Table below provides how the comments/suggestions were addressed in the updated final version of the report.

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
UNDP CO Project Team Implementation partners	1	**Issue 1:** The consultant mentioned that 'the biogas project of Kakira Sugar Works and National Water and Sewerage Corporation (NWSC) are not being considered as pilot projects under the NAMA project as they commissioned (or investment decision was made) much before the start date of the NAMA project.'	During project conception, it was discovered that there had been planned waste to energy projects at NWSC and Kakira Sugar Ltd, utilizing Municipal Wastewater and Agro-processing wastewater respectively, with prospects for managing Municipal Solid Waste generated in Kampala through establishment of a biogas to electricity plant. Thus, the project objective and objective indicators were coined around power generation from the two identified projects at NWSC and Kakira Sugar Ltd and an anticipated waste to electricity project for Kampala utilizing Municipal Solid Waste. Page 33 Paragraph 129 of the PAD made reference to the fact that the two investments were already in process of implementation. Therefore, the project objective and respective indicators were coined around these three projects, with a target combined generation capacity of 2.9 MW. The target of 88,300tones CO_{2eq} per year included the Kakira and MWSC contributions.	As per the Guidelines for 'Calculating Greenhouse Gas Benefits of the Global Environment Facility Energy Efficiency Projects' Direct GHG emission reductions are those achieved by project investments such as technology demonstrations and discrete investments financed or leveraged during the project's supervised implementation period (from the project start to the project closure) This is largely a project design and implementation issue. Specific points are as follows: a) The investment in Kakira Sugar and NWSC biogas plants happened much before the start date of the NAMA project. The investment was not made by the NAMA project or leveraged by the NAMA project. Thus, as per the definition these two biogas facilities cannot be

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
			By the time of project inception in 2019, Kakira Sugar Ltd and NWSC had already established their plants with capacity 0.4MW and 0.63MW respectively. The NWSC biogas plant was commissioned in 2022 after the NAMA Biogas Project came in play. Both plants were considered in-kind contribution from these entities for the project so basis for exclusion has to be clearly justified. Although the project funds were not injected in the establishment of the two plants, they had already been considered as contributors to the project objective and indeed the two entities are part of the organogram of the project, serving both at the Board and Project Technical Committee levels. The project had anticipated three pilot biogas power plants – Kakira, NWSC and a third at Kitezi or another site in Kampala to handle MSW. The project allocated USD 858,000 as co-financing towards establishment of the 3rd waste to electricity plant, utilizing Municipal Solid Waste. Although no particular project or organization had been identified in this regard, the project document indicated that Kampala had sufficient waste to host such a plant and it was hoped that a private entity would be identified to co-invest in establishment and operation of such a plant. The TE consultant team ignored the inclusion of the NWSC and Kakira biogas plants citing these were installed prior to project. However, there is need to clarify that the two plants were part of the assumptions made at the conception of the project. This the basis on which NWSC and Kakira consented to in-kind contribution to the project. Thus, removing these plants from the assessment limits the evaluation.	considered as pilot projects leading to reduction in the direct GHG emission reductions. b) As pointed out in the comment, the project design documents (para 129) has clearly mentioned that the investment in the Kakira Sugar biogas is being made as equity. It is clearly mentioned in the Project document (Para 129, bullet i) as follows; "*technical assistance is needed in the planning and optimal operation of the plant to demonstrate the viability of agro-processing industry waste combined with organic wastes from other sources*" This was the task which was envisaged to be carried out under the NAMA project. Somehow this did not happen. c) For the NWSC biogas plant the project document clearly mentioned in the (Para 129, bullet ii) as follows; *"due to the quantity and low calorific value of the waste- water feedstock, it is expected the unit will only operate at 30% capacity. Investment grants will be provided to procure and supervise construction of auxiliary systems required to process, sort and combine different waste streams."* This was the task which was envisaged to be carried out under the NAMA project. Somehow this did not happen. d) The situation at the time of project design and project start has changed. This needed consideration at the time of inception of the project and also subsequently during implementation of the project. Accordingly, adaptive measures were required to be taken, by selecting alternative pilot projects.

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
				e) In any case it is not logical to claim something, which existed before the start of the project implementation as an achievement of the project f) Whatever may be the reason, the situation at the time of TE is that the proposed pilot project at Kitezi was not being implemented. The assessment at TE made based on the status of implementation of the pilot project at Kitezi. Clarified as above. No changes made in the TE report.
UNDP CO Project Team Implementation partners	2	**Issue 2:** The consultant further claimed that 'the NWSC plant makes no additional contributions to electricity generation or emission reduction as almost the entire electricity generated gets used within the waste processing and biogas plant as auxiliary power with no exportable surplus.'	This is not true. The consultant seems not to understand the definition of auxiliary power. The auxiliary power consumption is the energy used for managing the generation system. This may be conveyors feeding the digesters, pumps for the slurry, fans, air conditioning, electronic devices, lights, or any other energy consumption related to biogas system – i.e. the powerhouse. The powerhouse 'exports' power to other equipment within NWSC complex. In this way, it reduces that amount of power NWSC would have drawn from the grid. This makes more power available in the national grid to be used by other consumers or reduce additional demand for electricity generation from other sources like fossil fuels.	Thanks for pointing out the lack of understanding of the definition of auxiliary power by the consultant. While evaluating the power consumption in a situation where the biogas based power plant would not have been established require many considerations. First and the foremost of such considerations is the extent of the sewage treatment facilities which would have got established and the corresponding energy consumption. In case such figures are available please share them, so that the same can be considered. In any case the auxiliary power consumption in the biogas based power plant of NESC is not impacting the evaluation, as this power plant is not being considered as a contribution by the GEF project. Clarified as above no changes made in the TE report
UNDP CO Project Team Implementation partners	3	**Issue 3:** The consultant asserts that "For the third planned pilot project MSW to Biogas to electricity at Kampala landfill site, a detailed feasibility study was carried out. It was not taken forward by the project team as it was realized	Having conducted the feasibility study for biogas to electricity plant utilizing Municipal Solid Waste in Kampala, it was discovered that the plant would cost USD 15,000,000, of which the project only had 5% part financing. Extensive engagement of the private sector was carried out with entities such as Sejin, GGGI, North-to Suth Linkages, Global Gases Group,	The information shared in the comment is now being included in the final version of the TE report. However, the assessment of the achievements of the NAMA project has been carried out as per the results framework of the project.

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
		that given the high capital cost, it would not be possible to get a private-sector investor."	Synthetic Clean Oil, RIC energy, Ministry of Finance, Total Energies etc. However, due to the time constraints, it was realized that the private sector would not access the available funds. The Board, therefore, on recommendation of the midterm review, approved to reallocate the funds to support procurement of the trommel machines to enhance screening of compost at anaerobic composting facilities to increase their throughput, which in turn would contribute to reduction in methane emission. The idea of the trommel machines was triggered by a benchmarking visit to Ghana by a select team from the NAMA Biogas partners.	
UNDP CO Project Team Implementation partners	4	**Component 1 Indicators. Issue 1:** On the first indicator "Number of policy and regulatory proposals developed and adopted", the consultant ranked this as moderately satisfactory.	This is not a fair ranking. By the time of the MTR, the project had already supported drafting of 5 ordinances, which had been submitted to the office of the Solicitor General. The review process has been slow and tedious. The project team did their best but could not influence the pace of work of the office of the Solicitor General. This should be ranked satisfactory.	Whatever may be the reason, the situation at the time of TE is that the ordinances were in the draft stage (except for one of the five cities).The assessment at TE is based on the status at the time of TE. For ready reference, given below is the GEF rating scale; o Highly Satisfactory (HS) - exceeds expectations, no shortcomings o Satisfactory (S) - meets expectations and no or minor shortcomings o Moderately Satisfactory (MS) - more or less meets expectations and some shortcomings o Moderately Unsatisfactory (MU) – somewhat below expectations and significant shortcomings o Unsatisfactory (U) - substantially below expectations and major shortcomings o Highly Unsatisfactory (HU) -severe shortcomings
UNDP CO Project Team Implementation partners	5	**Issue 2:** Number of municipalities (#) reporting increased capacity to undertake IWM, as a result of the projects capacity development activities. The consultant ranked this moderately satisfactory.	This is not fair ranking. The 2023 PIR reported that: "A total of 19 urban areas i.e. 11 cities of Jinja, Masaka, Mbale, Mbarara, Kampala, Soroti, Fort Portal, Lira, Gulu, Arua, Hoima and 3 municipalities of Tororo, Masindi, Kabale plus 5 in the Greater Kampala Metropolitan Area(GKMA) of Nansana, Mukono, Makindye Ssabagabo, Kira and Entebbe are reporting on IWM approaches promoted by the project. This has been achieved partly	The evaluation at TE and the ratings are not based on what is reported in the PIR 2023, but on the situation at the time of TE (as supported by the evidence/ document). No documents/ reports from the cities/ municipalities wherein reporting is being done based on IWM approaches, could be shared during the TE.

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
			through the stakeholder platforms i.e. GKMA Technical Working Group and Waste to Energy Thematic working group under the National Renewable Energy Platform (NREP) of the Ministry of Energy and Mineral Development (refer to spot messages from cities and municipalities and minutes from stakeholder meetings). A total of 19 urban areas are now reporting to project related activities." This should be ranked satisfactory.	
UNDP CO Project Team Implementation partners	6	**Issue 3:** Indicator "Multi- stakeholder platform established", the consultant reported that "although the multi-stakeholder platform was launched there was almost no activity under the platform".	The target indicator was to establish one multi-stakeholder platform by project end. However, by the MTR two multi-stakeholder platform had been established. The platform held several meetings. The outputs of the platform include developing much needed tools such as the National Biogas Strategy, Waste-sorting manual and joint implementation of actions in geared toward improved waste management. Activities such as trainings, benchmarking, etc. were done within the framework of the two platforms. This should be ranked "satisfactory".	Please have a look at the text of the project document regarding the purpose, structure and objective of creating the multi-stakeholder platform. Also, please consider the fact (as clearly mentioned in the results framework) that this indicator has come from UNDP Country Programme. National biogas strategy and other such outputs from the project has been dully considered under the first indicator for Outcome 1. Clarified as above. No changes made in the TE report.
UNDP CO Project Team Implementation partners	7	**Issue 4**: Indicator "Number of investments undertaken". The consultant reported that no investment was made.	The consultant ignores that fact that the target number of investments (i.e. 3) included Kakira and NWSC. The third was to come from Kitezi, which was not realized. The funds for Kitezi was reallocated to procure three trommel machines and 5 smaller biogas demonstration plants in 5 cities. These are all important investments, which should be counted. The time of TE, construction of the 5 demonstration plants were being finalized.	Please also see response to comment # 1. Please appreciate that, the investment here means largely the investment by the investors for establishing the biogas plants. Trommel mills is an unrelated activity. Further, GEF funds were spent for it and there is no investments undertaken Establishment of 5 small (of the order of 3.5 KW capacity each) institutional biogas demonstration plants has been dully acknowledged in the draft TE report. However once again they don't qualified to be included in the investments undertaken. Clarified as above. No changes made in the TE report

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
UNDP CO Project Team Implementation partners	8	**Component 3 Indicators** **Issue 1**: On the indicator "Grant/technical assistance fund and approach to attract investment into MSW- based biogas sector established", the consultant reported that "No Grant or technical assistance fund got established" and ranked the "Unsatisfactory".	The consultant failed to appreciate the description in the project document. Paragraph 152 on Page 46 of the PAD states that "In the 4th year of implementation, the project will create a grant and technical assistance fund that can be drawn upon by IFIs and/or project developers."	The fact remains that no grant and technical assistance fund got created. Please also see the response for comment # 9
UNDP CO Project Team Implementation partners	9		While Paragraph 153 states "The technical assistance component of the fund will consist of approximately USD 497,965 from GEF resources to carry out Activities 3.1.1, 3.1.2, 3.2.1, and 3.2.2. – linked with other TA co-financing and will be made available for projects meeting the minimum threshold. This activity will mirror the activities, integrate lessons learned and utilise the technical capacity that was developed through the TA activities provided under Output 2.2, including i) waste flow surveys; ii) bankable feasibility studies with firm data for project development; iii) permitting procedures, including compliance with environmental and safety standards; and iv) the final engineering plans."	Please appreciate creation of fund means a dedicated fund which is 'fenced' and has its own rules, administration and control systems. The fact remains that no such fund got created.
UNDP CO Project Team Implementation partners	10		Note that the indicator here is "grant/technical assistance". While GEF funds was allocated for technical assistance, there was no any allocation for the grants mentioned on Paragraph 152. You can confirm this on pages 66-68 of the PAD	Creating a grant fund and utilizing this grant fund for TA etc. is different than providing money from the project for TA. TE team is not in agreement with the comment that the indicator is 'grant/technical assistance'. It is quite clear that the indicator is creation of a fund and utilizing the fund for grant and technical assistance.
UNDP CO Project Team Implementation partners	11		Using the funds allocated for technical assistance, all preparatory works to ensure electricity generation from biogas were carried out and theses included detailed feasibility studies on Kiteezi (KCCA), enhancement of biogas production at NWSC and waste flow characterization studies for all 4 cities of Mbale, Jinja, Mbarara and	Please see response to comment at #10

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
			Masaka were carried out. Policy documents to support the waste to energy process and enable replication of technologies including ordinances, national biogas strategy, training manuals for biogas, Monitoring, reporting and verification tools among others were developed.	
UNDP CO Project Team Implementation partners	12	**Issue 2:** On the Indicator "Number of MSW- based biogas project concepts prepared", the consultant reported that "no concept note was developed".	The project also prepared at least 3 concepts, of which one was presented to Ministry of finance and is being considered for support to progress the activities that have been triggered from the NAMA Biogas project. Other concepts have been submitted to Mitigation Action facility still to generate additional funding.	The assessment is based on the documents shared at TE. No project concept were shared at the time of TE. Apart from MSW to Biogas pilot project of KCCA at Kampala (which was one of the three pre-identified pilot projects), no project concept was developed. As this was one of the pilot projects considered under Outcome 2, it can't be considered under Outcome 3
	13	**Component 4 Indicators:** **Issue 1:** Knowledge products. Website not operational	There is a lot of information on the website, kindly click on different tabs to access this information…click home page etc…resources…	Please rest assured, that all the tabs on the website and been thoroughly checked while carrying out the TE. What is written in the draft TE report is as follows • A project website has been created, but there is no content on the website, except a brief introduction about the project • No knowledge products or waste management practices were disseminated under the project. The TE team stands by what is mentioned in the draft TE report. Clarified as above. N changes made in the TE report
UNDP CO Project Team Implementation partners	14		The knowledge products shared including Biogas strategy, Communication strategy, gender strategy, MRV (monitoring reporting and verification) tools, sorting manual, etc. The consultant chose to ignore all these.	TE team is of the view that the documents mentioned in the comment cannot be considered as knowledge products. Clarified as above. No changes made in the TE report.
UNDP CO Project Team Implementation partners	15	**Issue 2:** Standardized baselines	The project developed a standardized baseline for computing emission reduction for Municipal Wastewater and Agro-processing Wastewater for the nation and also developed a monitoring, reporting and verification mechanism for	While the efforts made by the project team is appreciated, the fact remain that at the end of the project there is no Standardized Baseline. Please appreciate the evaluation is based on the

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
			tracking emission reduction from waste and wastewater. What is missing is that report of the third-party verifier. Attempt was made by the IP to recruit the third party verify – a designated operational entity (DOE), but was not successful. The IP requested UNDP to take over this procurement. The request for proposal was published and the deadlines extended twice, with no response, even after sending e-mails to some accredited DOEs. At a December 2023 Board meeting, it was decided that it was no longer necessary to pursue this procurement. The Climate Change Department (CCD) at the Ministry of Water and Environment should clear the standardized baseline since procurement of the third (3rd) party verifier has not been successful.	results and not on the extent of efforts made. Clarified as above. No changes made in the TE report.
UNDP CO Project Team Implementation partners	16	**Issue 3:** On the Indicator "NAMA registered on the UNFCCC Registry. The reported that "No NAMA got registered at the UNFCCC" and ranked this "Unsatisfactory".	This is a task that was carried out by Climate Change Department (CCD) …and this was submitted although UNFCCC did not effect this. This was beyond the project team. This should be ranked "Moderately Satisfactory".	While the efforts made by the project team is appreciated, the fact remain that at the end of the project there is no registered project with UNFCCC. Please appreciate the evaluation is based on the results and not on the extent of efforts made. Clarified as above. No changes made in the TE report.
UNDP CO Project Team Implementation partners	17		In summary Numerous trainings, building of capacity of stakeholders were widely carried out by the project on biogas, ordinances, integrated waste management, computation of emission reduction, sorting of waste and gender mainstreaming in waste sub-sector.	As per the Guidelines for carrying out Terminal Evaluation of the UNDP GEF projects, the TE of GEF projects needs to be evidence based and use results framework of the project as the basis. This is what has been done while carrying out the TE of the NAMA biogas project. Clarified as above. No changes made in the TE report.
UNDP CO Project Team Implementation partners	18		The project also raised awareness on Integrated Waste Management, biogas technology, gender considerations and policy provisions through spot messages, radio talk shows, website, TV presence, and a documentary.	These efforts and achievements of the NAMA project has been taken care while evaluating different Outcomes/Outputs of the project. Clarified as above. No changes made in the report.
UNDP CO Project Team	19		Through the various awareness campaigns, the project created a lot of interest in waste through the website and the platforms, which	Additional text provided in the TE report to highlight the co-operation/collaboration with Stanbic bank, Global

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
Implementation partners			generated collaborations with various stakeholders like Stanbic bank, Global Green Growth Institute, private sector in the country, international entities like Total Energies, Siemens, Global Gases Group, North to South Linkages (UK), Ric Energy (USA), Sejin G&E (Korea) and others.	Green Growth Institute, private sector in the country, international entities like Total Energies, Siemens, Global Gases Group, North to South Linkages (UK), Ric Energy (USA), Sejin G&E (Korea) etc.
UNDP CO Project Team Implementation partners	20		The project has opened up the waste to energy sub-sector by providing information on the parameters of waste resource, legal studies on enabling environment, institutional arrangements, grid impact studies, financial/ economic feasibility and environment and social impact assessments. The Ministry continues to pursue financing for the MSW 4.4MW biogas plant utilizing Municipal Solid Waste. The project rating of Unsatisfactory therefore does not depict the achievements of the project. This is because of the approach that was taken by the TE team, which did not consider the theory of change and underlying assumptions, rather was based on evidence of outputs.	As per the Guidelines for carrying out Terminal Evaluation of the UNDP GEF projects, the TE of GEF projects needs to be evidence based and use results framework of the project as the basis. This is what has been done while carrying out the TE of the NAMA biogas project. Clarified as above. No changes made in the TE report
Following additional comments and suggestions were provided on 20 June 2024. It was post the meeting between TE consultants, UNDP, Project Team and other stakeholders to discuss the draft TE report				
UNDP CO Project Team Implementation partners	21	Under section 4.1 Adaptive management and Feedback from M&E used for adaptive management, the report states that "There is no evidence to suggest the use of feedback from M&E activities for adaptive management of the project.	This is not an accurate statement as the MTR recommendation on procuring trommel machines was implemented. The MTR can serve as an important adaptive management tool.	The contribution of the MTR and the corresponding adaptive actions have already been covered in adequate detail in section 4.1 of the draft TE report. Text in section 4.1 modified in response to the comment.
UNDP CO Project Team Implementation partners	22	In section 5.7 Mainstreaming, the report states that "the project does not have any positive or negative impacts" and that "there are no results of the project." This is not a fair or accurate statement. The subsequent section 5.8 on Sustainability mentions some of the specific results of the NAMA project.	Even if the project did not achieve its overall objective, the policy support on ordinances, biogas strategy, energy policy (which includes biogas and waste to energy) awareness raising, capacity building activities, and procurement of trommel sorting machines surely had a positive impact.	The contents of section 5.7 may kindly be read in the context of the evaluation questions (evaluation questions are provided in the box, just before the beginning of the section). Please appreciate mainstreaming is in the context of development priorities od UNDP and the context of section 5.8 is entirely different. Text modified to provide more clarity.
UNDP CO	23	In several places, the TE highlights as a	However, it is important to note that this is in fact in line with UNDP	Agreed that in the results framework Indicators are not

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Project Team Implementation partners		project design deficiency the fact that indicators and targets were not provided at the output level.	vertical fund policy. As per the UNDP Annotated Project Document for Projects Financed by the Various GEF Trust Funds, the project developer should list the outputs in the results framework but should not add indicators for the outputs. https://popp.undp.org/document/undp-annotated-project-document-projects-financed-various-gef-trust-funds	required to be provided at the level of Outputs. However, it may please be appreciated that as per the guidelines the Outputs are required to be part of the results framework. This is what is missing in the present case. In the absence of Output level details in the results framework they don't get deliberated upon during preparation of PIR, MTR etc. Corresponding correction done in the TE report.
UNDP CO Project Team Implementation partners	24	One of the findings of the TE report (on page 14) is that the 'trommel mills do not improve the performance and overall results of the NAMA project in terms of the objectives of the NAMA project.'	The trommel machines will support the objective of waste management by separating the compost from the treated MSW, hence enhancing aerobic decomposition, leading to reduction in methane emission. As the overall objective of the project is improved waste management practices in towns and municipalities in Uganda, and as the decision to procure the trommel machines was in response to an MTR recommendation, a case can be made that the trommel machines do contribute, at least partially, to the overall objective, i.e. improved wastes management and reduction in greenhouse gases emission.	The comment is not specific in terms of which objective / component/ outcome or output of the NAMA project is being addressed by the 'trommel mills'. The draft TE reports mentions, "The adaptive measure of installing trommel mills at three of the pilot cities improved the level of utilization of funds meant for providing grant support to the replication projects, but it did not help to improve the performance and overall results of the NAMA project in terms of the objectives of the NAMA project." The fact remains that trommel mills are in no way associated with the technology of biogas generation from waste, which is the central theme of the NAMA project. Clarified as above. No changes made in the TE report.
UNDP CO Project Team Implementation partners	25	The Consultant reported that "No business models got established amongst municipalities and agro- processing partners"	While it is correct that Component 1 focuses mainly around creating the enabling conditions for improved waste management and MSW-based biogas systems, under the second Component, the project sought to demonstrate three different business models: • Business model 1: Municipal waste conversion to biogas converted to electricity/heat • Business model 2: Municipal wastewater treatment resulting in	As explained earlier, (please see response to comment 1), Kakira Sugar and NWSC biogas plants are not being considered as pilot projects of the NAMA project. Clarified as above. No changes made in the TE report.

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
			biogas converted to electricity/heat • Business model 3: Industrial/ food production/ agricultural waste conversion to biogas converted to electricity/heat. As already explained, the first two business models were to be demonstrated with funding from Kakira and NWSC. These were achieved.	
UNDP CO Project Team Implementation partners	26	The consultant noted that "Based on the rating for relevance, effectiveness, and efficiency, the Overall project outcome is assessed as Unsatisfactory."	The TE report seems to have unduly penalized the project management unit for an overly ambitious project design. It is also important to take into account that with a grant of just $2,170,030, the GEF funding was quite limited. The TE should take into account the results achieved with the limited resources available. The project has opened up the waste to energy sub-sector by providing information on the parameters of waste resource, legal studies on enabling environment, institutional arrangements, grid impact studies, financial/ economic feasibility and environment and social impact assessments. The Ministry continues to pursue financing for the MSW 4.4MW biogas plant utilizing Municipal Solid Waste. The project rating of Unsatisfactory therefore does not depict the achievements of the project. This is because of the approach that was taken by the TE team, which did not consider the theory of change and underlying assumptions, rather was based on evidence of outputs.	It may please be appreciated that TE is of the project and not the PMU / project team /IPs. TE has been done as Guidelines for carrying out Terminal Evaluation of the UNDP GEF projects, the TE of GEF projects needs to be evidence based and use results framework of the project as the basis. This is what has been done while carrying out the TE of the NAMA biogas project. Clarified as above. No changes made in the TE report
Following are the counter responses to the clarifications provided by the TE team during the meeting to discuss the draft report, on the set of comments provided on the draft report.				
UNDP CO Project Team Implementation partners	27	The Consultant responded that: - - Improvement in technical capacity was attempted by way of training, study tour, capacity building efforts. - No enabling policy conditions happened. - No business models got established amongst municipalities and agro- processing partners - No increased demand and capacity for	Counter Response The project stakeholders were not happy with the consultant saying "Improvement in technical capacity was attempted by way of training". The fact is that trainings were conducted – not just attempted. This can be counted as capacity development. Increased demand is measured by the number of companies that approached the Ministry expressing interest to invest in waste to energy. Minutes of the meetings and e-mail exchanges to be shared.	Conducting a training session, organizing the tours, capacity building sessions is one of the first steps towards improving the technical capacity. The effectiveness of such sessions needs to be measured to claim that there was improvement in the technical capacity. This is normally done as a part of monitoring the results of the project. Based on the additional documents shared, additional text is included in the TE report regarding the

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
		MSW- based biogas systems. - The project was intended to drive demand and enhance capacity for MSW-based biogas energy systems based on standardized systems and approaches. This did not happen.		interactions with the companies showing interest in Biogas Text of the TE report modified to take care of this comment
UNDP CO Project Team Implementation partners	28	**Issue 1** (this refers to the original comment at #1)	**Counter Response** The issue here is the project targets included Kakira and NWSC investments. These targets were achieved. A fair statement would be for the consultant report that the targets were achieved, but not with funding from this project.	Please see response to comment at #1. As per the definition Kakira and NWSC cannot be considered as pilot projects of the NAMA project. Clarified as above. No changes made in the TE report.
	29		**Counter Response** There was no funding available for selecting alternative pilot projects to Kakira and NWSC as these were considered in-kind contributions to the project. The implementation of the Kakira and NWSC projects were just done faster than the UNDP-GEF project approval pace. Since the approved project document includes the Kakira and NWSC plants, the TE consultant should not reject them.	It was a difficult situation for the NAMA project, that the Kakira and NWSC biogas plants got commissioned /erected before the start date of the NAMA project. However, this does not change the definitions and the guidelines for carrying the TE of UNDP-GEF projects. Clarified as above. No changes made in the TE report.
UNDP CO Project Team Implementation partners	30	**Issue** 4 (this corresponds to comment # 7)	**Counter Response** In the first point above, the consultants present a contradiction. On the one hand they claim the Kakira and NWSC should not be considered a project investment because it came from the private sector while here it again says investment must come from the private sector. The 5 small biogas plants are surely investments. It is unthinkable for the consultant to reject them.	Please see the response to comment #1. The issue in case of the biogas plants of Kakira Sugar and NWSC is not the investment by the private sector, but the fact that these two biogas plants were commissioned/ erected before the start date of the NAMA project.
UNDP CO Project Team Implementation partners	31	**Issue 3** (this corresponds to comment #6)	**Counter Response** The ProDoc under Output 1.5, Paragraph 100 states that "In order to facilitate sector coordination, the project will support the establishment of a multiple stakeholder coordination platform, whereby stakeholders will take on joint responsibility with clear roles and responsibilities for each actor." The two established platform is doing just that. All the stakeholders meetings, benchmarking, and	Please see response to comment # 13. The website was created, but there is hardly any content on the website. For the multi-stakeholder platform, please see the response to comment #6. The only document shared at the time of TE is a news announcement that a multi-stakeholder platform has been launched.

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			capacity buildings were done within the framework of the platform. Reports/minutes of the engagements were shared and will be shared again.	There are no documents to support that any activities/ consultations etc. were ever carried out under the platform.
UNDP CO Project Team Implementation partners	32	**Issue 8** (this corresponds to comment #8, 9,10,11)	**Counter Response** The Results Framework on page 55 of the ProDoc describes this indicator as "Grant/technical assistance fund and approach to attract investment into MSW- based biogas sector established The indicator was for either grant or technical assistance. Funds were allocated for technical assistance." This means either grant or technical. That means, if one of the passes, then the target is achieved. While GEF funds was allocated for technical assistance, there was no any allocation for the grants mentioned on Paragraph 152. You can confirm this on pages 66-68 of the PAD. There is no way the grant fund could be established. The description on paragraph 153 does not imply that technical assistance grant would be created – but rather that the project will facilitate technical assistance using the allocated GEF resources. The PMU implemented what was budgeted for i.e. the technical assistance. Since the indicator was for either grant or technical assistance, a satisfactory delivery of either of these indicators should be acceptable. The project team provided technical assistance as was described in the project document. The TE consultant is fixing attention only on grant, which was not in the project budget. The TE team should acknowledge this project design/funding issues and credit the project team for the achievements registered using the limited resources.	Please see the response to comments #8,9,10 and 11) Please appreciate here we are not talking about 'technical assistance grant', but about a fund to provide technical assistance/grant.
UNDP CO Project Team Implementation partners	33	**Issue 9** (this relates to comment# 12)	**Counter Response** The project team will again share copies of the project concept notes	No project concepts were shared.
UNDP CO Project Team	34	**Issue 10** (this relates to comment #13)	**Counter Response:** The indicator targets here were "Project website established (1)" at	There needs to be objectivity and purpose of the actions under the project.

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Implementation partners			MTE and "Project website updated (1)" at TE. Although it would have been nice to have the website updated regularly, the regularity was not the approved indicator	TE team is of the view that TE is not a tick mark kind of exercise. Creation of the website has already been acknowledged in the draft TE report.
UNDP CO Project Team Implementation partners	35	**Issue 11** (this relates to comment #15)	**Counter Response:** The Project Board decided that the approval of the standardized baselines by the Climate Change Department is sufficient since the project team had failed to recruit a DOE. The Board decision was, in part, informed by the fact that standardized baselines are not required for NAM projects. Hence, it was not necessary to continue struggling to get a DOE – national level approval should be sufficient. In summary, the project achieved updating of two standardized baselines, namely: • Standardized baselines for methane recovery from municipal wastewater treatment in Uganda • Standardized baselines for methane recovery from wastewater treatment in the sugar industry in Uganda.	Assessment at TE has been carried out as per the guidelines for TE of UNDP-GEF project. Any formal change in the project design needs to be documented and formally approved by the project board/UNDP and RTA.
RTA	36		The TE assesses that the cumulative progress achieved against each of the four objective-level indicators is 0. This is not an accurate assessment for the following reasons: During the detailed project design stage, a thorough site selection process was undertaken to select the pilot projects under the GEF project. The three sites – Kampala landfill, NWSC Nakivubo wastewater treatment plant, and Kakira Sugar – were selected based on the following six criteria: • Interest expressed by the project developers/counterparts. • Potential feedstock available • Technical feasibility of the plant construction/implementation • Realistic possibility of positive social, environmental, and gender impact • Potential financial/in-kind contribution by the project developers/counterparts • Potential for replication Indeed, one of the aims of the GEF project was to demonstrate the technical maturity and sustainability of three business models:	Date of CEO endorsement – Aug 2018 Date of ProDoc Signature – Sep 2018 Date of Inception Meeting – Feb 2019 - Date of commissioning of Kakira Sugar biogas plant – Jan 2017. Document for this is available in public domain (on the internet) - As per the Annual Report of NWSC 2018-19, "the construction contract was signed on 3rd November 2011. The initial site was located within the Nakivubo swamp. However, upon commencement of the work, the site conditions proved unsuitable. The project was therefore relocated to Bugolobi in Jan 2014. The overall progress was at 98% as at 30 June 2019. The annual report is available in public domain (on the internet) As is evident the funding (financing) of these two

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			- Municipal waste conversion to biogas converted to electricity/heat - Integrated municipal wastewater treatment resulting in biogas converted to electricity/heat - Agro-processing waste conversion to biogas converted to electricity/heat The three selected sites represent each of these business models. An important aspect of the theory of change is that the operational experiences gained from the biogas plants could lead to further optimization and inform policy development. Against that background, there are a few points that we would ask the TE team to consider. 1. Crucially, the NWSC and Kakira Sugar pilots were included in the project design and the results framework and were included in the calculation of the expected GHG impacts from the GEF project. 2. As per the attached file, both NWSC and Kakira Sugar provided co-financing commitment letters at the CEO endorsement stage in the amount of $7,800,000 and $2,000,000 in equity financing respectively. This co-financing was accepted by the GEF as part of the final approval of the project. It is important to note that the GEF has a broad definition of co-financing, i.e. financing that is additional to the GEF grant that contributes to the objective of a GEF-financed project. 3. Following CEO endorsement, there was a delay of more than one year in project document signature, which was beyond the control of the UNDP Country Office. During that period, the NWSC and Kakira Sugar biogas plants either started construction or were commissioned. As both pilot projects contribute to the objective and targets of the GEF project and are consistent with the GEF definition of co-financing, the impacts of the pilots should be included in the TE report. There are several precedents in the GEF portfolio where co-financing has been realized in parallel, as also acknowledged by the GEF Independent Evaluation Office. It should also be noted that once a project is endorsed by the GEF	biogas projects happened before the start date of the NAMA project. The view taken during the TE is that the expenditure (either financing or co-financing) which happened before the start of the project can't be taken as contribution for the project. The lesson learnt is that at the time of inception of the project, a review of the situation of the pilot activities is required, and if necessary adaptive measures needs to be taken Realization of Co-financing in parallel is fine. But not the financing/funding before the start date of the project. While appreciating the efforts by MEMD and the project team, the compulsion is that TE needs to be carried out as per the Guidelines and needs to be evidence based. The fact remains that expect for some results for Component 1 of the project, there are no appreciable results on the ground.

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			CEO, it becomes part of the active portfolio. 4. For the reasons mentioned above, the impacts from the two biogas plants in terms of GHG emission reductions, financing mobilized, and electricity produced should be taken into account in the assessment of cumulative progress. As currently presented, the reader is left with the impression that following 70 months of implementation, there have been no results on the ground, which is not a fair assessment for either MEMD or the project team.	
RTA	37		The question of attribution and the level of support and engagement of the project vis-à-vis the NWSC and Kakira Sugar biogas plants is another question that should be assessed independently. My understanding is that NWSC and Kakira Sugar participated in the Technical Committee and Project Board meetings and also presented the results of their investments at national renewable energy conferences. For that, I am requesting the project team and CO to provide additional evidence to demonstrate that the two pilots were an important part of the GEF project.	TE team look forward to receiving the additional documents. The project team shared the proceedings of the Renewable Energy Conference and Expo for 2022 and 2023. Wherein a session on waste to energy the officials of NWSC and Kakira Sugar participated as one of the panelist. There are no PPT or presentation on the pilot projects.
RTA	38		Comment #3: With respect to Indicator 1 on Achieved direct GHG emission reductions, the TE mentions that "even if [the NWSC] facility is considered as a contribution by the NAMA project, there will not be any contribution as almost the entire electricity generated gets used within the waste processing and biogas plant as auxiliary power with no exportable surplus." However, as the CO has noted, the GHG emission reductions are calculated against the baseline scenario and are not dependent on feeding the electricity back to the grid.	Living with the difference of opinion on this, TE team has removed this observation from the TE report.
RTA	39		Comment #4: In terms of Indicator 2: Number of people benefiting from improved organic waste management, the trommel compost sorting machines and the six demonstration biogas plants that were set up at schools should be included as part of the project impact. Notwithstanding the TE view that the trommel machines are an "unrelated activity," one of the main recommendations of the mid-	A look at the Project Document clarify that at the project design the population of the five pilot cities were considered as the beneficiaries. It needs to be appreciated that at the time of TE the institutional biogas projects were under construction. Thus, there are no

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			term review was the following: "Re-allocate funds for pilot plants to procurement of a demonstration mobile waste separation and sorting trommel machine(s)…These mobile trommels could be used to demonstrate recovery of resources from waste/integrated waste management approaches since organic waste is used to produce biogas and/or organic fertilizer." Therefore, the trommel machines should be included as part of the project impact.	beneficiaries. The student population of these institutions are the potential beneficiaries. Based on the figures of enrollment of students and the number of staff in the institutions, the TE team has included the number of potential beneficiaries due to establishment of small institutional biogas plants. Establishment of Trommel mills does not support any of the Core Indications of GEF GHG mitigation projects. Also it is not supporting any of the NAMA project indicator (except may be number of beneficiaries – as argued in the comment). This is one of the reason for the statement that establishment of Trommel mills is an unrelated activity. Considering the strong views on this issue, the TE team has removed this statement.
RTA	40		Comment #5: As per the TE guidance, the calculation of the overall project outcome rating should be based on the ratings for relevance, effectiveness and efficiency. If one were to take a simple average of the criteria, the Overall Project Outcome Rating would be Moderately Unsatisfactory (MU).	The ratings for relevance, effectiveness and efficiency in the present case are as follows: Relevance S Effectiveness U Efficiency U The guidelines for TE specifies the following for the Overall Rating Overall Project Outcome (*) The calculation of the overall project outcome rating will be based on the ratings for relevance, effectiveness and efficiency, of which relevance and effectiveness are critical. Overall project outcome is assessed using a six-point scale, described in Table 15. • First constraint: The rating on relevance will determine whether the overall outcome rating will be in the unsatisfactory range (MU to HU = unsatisfactory range). If the relevance rating is in the unsatisfactory range then the overall outcome will be in the unsatisfactory range as well.

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
				However, where the relevance rating is in the satisfactory range (HS to MS), the overall outcome rating could, depending on its effectiveness and efficiency rating, be either in the satisfactory range or in the unsatisfactory range. • Second constraint: The overall outcome achievement rating cannot be higher than the effectiveness rating. • Third constraint: The overall outcome rating cannot be higher than the average score of effectiveness and efficiency criteria. Accordingly the overall rating has been provided
RTA	41		Comment #6: The TE has assigned Satisfactory ratings for Monitoring and Evaluation, including M&E Plan Implementation and Overall quality of M&E. Yet, the TE ratings and assessment of overall project progress are considerably lower than those of the independent mid-term review and the annual Project Implementation Reports (PIRs), which form a core part of the project M&E. The mid-term review finds that "the capacity of cities and municipalities to undertake integrated waste management (IWM) approaches has been enhanced through continuous training, awareness raising and sensitization; policies and local regulations with regards to waste management have been strengthened; and stakeholders along the waste management value chain have been trained in different aspects of IWM and resource recovery from waste." The MTR also notes that thanks to the project interventions, there is increased interest from the private sector to invest in waste-to-energy ventures, which is a positive outcome that bodes well for replication. The TE should provide a brief explanation for the divergence in findings and ratings in comparison to the project M&E, which the TE assesses as Satisfactory	The ratings for M&E at TE are based on the evaluation questions and whether the required documents for M&E were prepared. The ratings in no way reflects the accuracy, appropriateness of the MTR report and the PIR reports. At TE the accuracy and appropriateness of the PIR and MTR has not been evaluated as this is not in the scope of TE.
RTA	42		Comment #7: In response to Comment #5 in the audit trail, the TE team mentions that "The evaluation at TE and the ratings are not based on what is reported in the	Please have a relook at the text. What is meant is that the information provided in the Tables is based on PIR 2023.

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
			PIR 2023, but on the situation at the time of TE (as supported by the evidence/ document)." The PIR should be considered as part of the evidence that the TE reviews and weighs in determining its findings and conclusions. The TE should provide a brief explanation for the divergence in findings and ratings in comparison to the annual PIR reporting.	The view is that PIR is not considered as an evidence. The guidelines for TE mentions that one needs to point out how the assessment at TE compares with those provided in the PIR.
RTA	43		Comment #8: It is uncommon to see Satisfactory ratings for quality of execution, combined with an Unsatisfactory project outcome rating. This discrepancy also merits an explanation in the TE report	Under NIM the role of the executing agency (UNDP) is limited. The evaluation of the executing agency has been done in terms of the evaluation questions.

DIVERGENCE POSITION BY THE LOCAL CONSULTANT

Michael Kiza

From: Cliff Bernard Nuwakora <cliff.nuwakora@gmail.com>
Sent: Wednesday, 21 August 2024 14:41
To: Michael Kiza
Cc: Faris Khader; Polly Akankwatsa Mugisha; Tom Sengalama; dinesh.a@rediffmail.com
Subject: Re: Cliff divergent position on NAMA TE Report

Dear Micheal and Team

Whereas I thank and welcome the Team Leaders submission of the Final report, I would like to submit that I still hold a divergent view in respect to the issues previously raised about the contributions of Kakira plant and NWSC.

As per my previous communication and subsequent meeting with GEF RTA I am still totally convinced that the two plants had significant contribution and impact to the project given the fact that we can also not discard and disregard the achievements and results registered at MTR stage.

I felt I should still bring this to your kind attention for record purposes much as I own the rest of the contents of the final report.

We hope to hear from you soon

Cliff Bernard NUWAKORA
National Consutant
NAMA Project

ANNEX G: EVALUATION REPORT CLEARANCE FORM

Evaluation Report Reviewed and Cleared by

UNDP Country Office

Name: Polly Akankwatsa Mugisha _____

Signature: _____ Date:

DocuSigned by:
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UNDP GEF RTA

Name: Faris Khader

Signature: _____ Date: _____

DocuSigned by:
Faris Khader
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