

INDEPENDENT TERMINAL EVALUATION

Sustainable Conversion of Waste to Clean Energy for Greenhouse
Gas (GHG) Emission Reduction Project

UNIDO Project ID: 120568

GEF Project ID: 5154



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1. Acronyms and Abbreviations

Acronyms and Abbreviations	Definition
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gases
GoK	Government of Kenya
IBPP	Information and best practices platform
KII	Key Informant Interview
KIRDI	Kenya Industrial Research and Development Institute
M&E	Monitoring & Evaluation
MEMR	Ministry of Environment and Mineral Resources
MoE	Ministry of Energy
MOF	Ministry of Finance
MoITED	Ministry of Industrialization, Trade and Enterprise Development
MTR	Mid-Term Review
NGO	Non-Government Organization
NPC	National Project Coordinator
PIR	Project Implementation Report
PMU	Project Management Unit
ProDoc	Project Document
PSC	Project Steering Committee
SDG	Sustainable Development Goals
TE	Terminal Evaluation
ToC	Theory of Change
TOR	Terms of Reference
UNIDO	United Nations Industrial Development Organization
USD	United States Dollar
WTE	Waste to Energy

2. Executive summary

2.1. Background

Climate risks pose serious threats to the achievement of Kenya's Sustainable Development Goals (SDG). Being the largest economy in East Africa with a population of nearly 48.5 million, Kenya serves as the region's financial, trade, and communications hub. The country's economy is largely dependent on rainfed agriculture and tourism, both of which are susceptible to climate change and extreme weather events. Kenya uses hydropower and fossil fuel for heat and electricity production. Over-reliance on fossil fuels is one of the major causes of Greenhouse Gas (GHG) emissions, and the recent change in climate means low rainfall, which has caused hydropower outputs to drop and become unreliable.

As one of the possible options to address this shortage, this project aims to promote the conversion of waste to clean energy as an alternative electricity generation source. Due to the considerable biogas potential and the regulation of an attractive feed-in-tariff system for the biogas technology by the Kenyan Government, biogas technology from anaerobic digestion has been selected for conversion of waste to energy.

2.2. Scope and objectives of the Evaluation

This Terminal Evaluation (TE) assesses the project performance against expectations set out in the project's Logical Framework/Results Framework and the Project Document (ProDoc). The TE assesses the results according to the criteria outlined in the GEF Guidelines for Conducting Program Evaluation, and UNIDO Evaluation Manual.

The TE concerns the entire lifespan of the project from commencement in November 2015 to closure in March 2023. It assesses, among others, the relevance, efficiency, sustainability and effectiveness of the project and whether the project has generated the desired changes based on the outputs delivered.

2.3. Methodology

The TE was undertaken using a collaborative and participatory approach to ensure close interaction and engagement with the Project Management Unit (PMU), government counterpart agencies, and ministries such as the Ministry of Industrialization, Trade and Enterprise Development (MoITED) along with Kenya Industrial Research and Development Institute (KIRDI), UNIDO Country Office, UNIDO Head Office, and other key stakeholders. The evaluation also ensured close engagement with project beneficiaries and all other key stakeholders. The National Consultant visited some of the WTE demonstration Project sites in Kenya to interview Project beneficiaries. No international field mission or international travel took place during any part of the evaluation.

Desk Review, site visits, interviews with stakeholders, and other secondary sources of information were used as tools in this evaluation.

Evaluation team members consisted of the following:

1. Dr Drona Upadhyay – International Evaluation Consultant
2. Dr Laban MacOpiyo – National Consultant

2.4. Factsheet

Table 1 Project Factsheet

Project title	Sustainable conversion of waste into clean energy to reduce GHG emissions
UNIDO project No. and/or ID	120568
GEF project ID	5154
Region	Africa
Country(ies)	Kenya
Planned implementation start date (for GEF projects, as indicated in CEO endorsement/Approval document)	September 2015
Planned implementation end date (for GEF projects, as indicated in CEO endorsement/Approval document)	November 2019
Actual implementation start date	November 2015
Actual implementation end date	30 June 2023 (with extension ¹)
GEF Focal Areas and Operational Project (in addition, also indicate whether the project is linked to a GEF programme)	Climate change
Environmental Benefit	Environmental Benefit of the Project is the reduction in GHG emission by producing WTE from agricultural waste which is currently burnt or dumped in landfill sites thus producing GHG.
Implementing agency(ies)	United Nations Industrial Development Organization
Executing partner(s)/entity(ies)	<ul style="list-style-type: none"> • Ministry of Environment and Forestry • Ministry of Energy • Ministry of Industrialization and Enterprise Development • Ministry of Agriculture, Livestock and Fisheries
Donor(s):	N/A

¹ In total, the project had four no-cost extensions that were discussed/requested by the Project Steering Committee.

Total project allotment (for GEF: project grant)	USD 1,999,998
Total co-financing at design (cash, in-kind, investments and grant)	Cash: USD 5,184,915 In-kind: USD 4,639,803 Investments: USD 395,000 Grant: USD 60,000 Total: USD 9,824,718
Materialized co-financing at project completion (cash and in-kind)	USD 6,728,235 (total of in-kind and cash)
Mid-term review date	From December 2020 to February 2021

2.5. Project Description

UNIDO has implemented a GEF-supported project called the “Sustainable conversion of waste to clean energy for greenhouse gas (GHG) emission reduction” in Kenya. The main objective of the project is to promote investments in waste to energy (WTE) technologies to increase the electrification rate as well as to reduce greenhouse gases (GHG) emissions in the country.

The Project consists of four (4) components as described below:

Project Component (PC) 1: Capacity development and knowledge management

Training as a major activity in this PC, this component focused on awareness and capacity building on WTE to achieve the expected outcome of improved awareness, knowledge sharing on best practices and capacity building in the country.

Project Component (PC) 2: Establishment of agro-industrial WTE demonstration plants

The focus of this component was on establishing agro-industrial WTE demonstration plants in Kenya. Technical assistance for project development was facilitated through a GEF grant. A part of GEF grant of approximately USD 700,000 was also to be used to provide incentives towards equipment purchase within the limits set by the principles of incremental cost. The co-financing contribution from private investors was expected to be used for establishing the demonstration projects.

Project Component (PC) 3: Scaling up investment in WTE plants

The aim of this component was to establish a soft loan scheme with lower interest rate based on partial risk guarantee assured by the Kenyan Government.

Project Component (PC) 4: Monitoring and Evaluation (M&E)

This project component covers the project monitoring and oversight by UNIDO working in close coordination with MoE, MoITED and MEMR. This component also consists of the mid-term review and the terminal evaluation of the Project, workshops to disseminate information and lessons learned, and annual reports to GEF in the form of PIRs.

The project components, outputs, indicators and the baseline are summarised in Table 4².

2.6. Ratings Table

Table 2 Ratings Table

#	Evaluation criteria	Rating	Numerical Rating
A	Progress toward Impact	Moderately Satisfactory	4
B	Project design	Moderately Satisfactory	4
1	Overall design	Moderately Satisfactory	4
2	Logframe	Moderately Satisfactory	4
C	Project performance	Moderately Satisfactory	4
1	Relevance	Highly Satisfactory	6
2	Effectiveness	Moderately Satisfactory	4
3	Efficiency	Satisfactory	5
4	Sustainability of benefits	Moderately Unsatisfactory	3
D	Cross-cutting performance criteria	Satisfactory	5
1	Gender mainstreaming	Satisfactory	5
2	M&E	Highly Satisfactory	6
E	Performance of partners	Satisfactory	5
1	UNIDO	Satisfactory	5
2	National counterparts	Satisfactory	5
3	Donor	Satisfactory	5
F	Overall assessment	Moderately Satisfactory	4

² Please refer to section 0 of the report.

2.7. Conclusions

The following conclusions are drawn after the terminal evaluation data review and stakeholder consultations. Please refer to Section 0 for details about these conclusions and references to the main text of the report.

1. Some candidates selected for the County Energy Planning training were not appropriate to the training provided which resulted in the knowledge gained not being fully utilised.³
2. Given that PSC meetings were only held annually, PSC meetings were not able to follow up on issues promptly and had to wait for a whole year for the next PSC meeting to take place and raise such issues.⁴
3. Training of KIRDI with a focus on it providing training to other stakeholders including financial institutions is a positive development, though at the time of writing, the online IBPP, has limited functionality.
4. Based on interviews and PSC meeting discussions, access to finance is the biggest hurdle with banks not yet open to investing in WTE and biogas projects.
5. Kenya's institutional and regulatory framework presents a challenge for the utilization of biowastes and agricultural residues for bioenergy electricity generation. It is difficult to secure financing for commercial-scale plants through local financial institutions, and the government's support in arranging financing for such projects is limited at this stage.

2.8. Recommendations

The following are the recommendations provided, based on the conclusions above, for execution by institutes in bold at the end of each recommendation.

1. In order to ensure the future success of biomass power generation projects, it is vital to undertake assessment of current and future biomass resource availability early on in WTE.
2. Appropriate screening of the candidates should be carried out and if necessary, the screening procedure should be reviewed and agreed with stakeholders so that right set of candidates are selected for the corresponding training during any future training such as the training on County Energy Plans.
3. It is recommended that PSC meetings be held at least twice a year – one of which could be a virtual one. As a minimum, there should be a mechanism for PSC members to follow up on issues raised in a meeting without having to wait a whole year to query the progress on the issue.

³ Refer to Section 0 (sub-heading "Capacity Building") of the report.

⁴ Refer to Section 0 of the report.

4. UNIDO and other stakeholders should monitor progress of KIRDI's provision of training to other institutions utilising the training of trainers received by KIRDI personnel under this UNIDO project.
5. It is recommended to engage the interest of financial institutions and raise their confidence in investing in biomass energy sector through awareness raising activities and capacity building using tools such as financial modelling to understand the sustainability of such projects beyond project completion.

3. Evaluation objectives, methodology and process

3.1. Scope and objectives of the evaluation

As indicated in the Inception Report, this Terminal Evaluation (TE) seeks to assess the achievement of the project results against what was expected to be achieved and draw lessons that can both improve the sustainability of benefits from the project, and aid in the overall enhancement of UNIDO programming. The TE promotes accountability and transparency and assesses the extent of project accomplishments. The TE also aims to learn from the project's experiences in developing models for sustainable conversion of waste to clean energy and to aid the overall enhancement of the UNIDO programming.

The TE has been expected to assess the project performance against expectations set out in the project's Logical Framework/Results Framework and the ProDoc. The TE assesses the results according to the criteria outlined in the Guidance for TEs of UNIDO-supported GEF-financed Projects.

The objectives of the Terminal Evaluation (TE) are to enhance transparency and dialogue between project stakeholders to promote learning for future projects, as well as for its replicability and scaling-up of results; to gain insights on the functioning of the project structures and processes; to check to what extent project milestones outcomes have been achieved, and if targets were met and results achieved as planned. This is based on an assessment of the project's relevance, acceptance, potential risks, project effectiveness, efficiency, as well as potential desired impact and sustainability. The TE also assesses the design of the monitoring and evaluation framework to ensure efficient monitoring during project implementation and evaluability.

The external independent TE is expected to provide evidence-based information that is credible, reliable, and useful for the stated purpose. In addition, lessons learnt should be shared within UNIDO to further develop project approach and to feed into project design and formulation of similar programmes and projects, and to enhance learning within the organization. It will also feed into the UNIDO's Independent Evaluation Unit's report of the programmatic approach to project intervention in Kenya.

The TE concerns the main lifespan of the project from commencement in November 2015 to closure on 30 June 2023. This report covers all project areas of geographical coverage. This TE focuses on the relevance and effectiveness of the project. It assesses whether the project has generated the desired changes based on outputs delivered.

3.2. Methodology employed

As already indicated under section 1.3, the TE was undertaken using a collaborative and participatory approach to ensure close interaction and engagement with the Project Management Unit (PMU), government counterpart agencies and ministries such as Ministry of Industrialization, Trade and Enterprise Development (MoITED) along with KIRDI, UNIDO Country Office, UNIDO Head Office, and other key stakeholders. The evaluation also ensured close engagement with project beneficiaries and all other key stakeholders. National Consultant visited some of the WTE demonstration Project sites in Kenya to interview Project beneficiaries. No international field mission or any international travel took place during any part of the evaluation.

The evaluation team also reviewed relevant sources of information, such as the Project document, Project reports – including Annual PIRs, Project budget, UNIDO progress reports, Project files, national strategic and legal documents, training reports, PSC meeting minutes, WTE plant progress reports, publications and videos, commissioning and completion reports, and other publications.

The TE used the data and information from both primary and secondary sources. Primary data were collected directly from key stakeholders through interviews, questionnaires, checklists and direct observation techniques. Secondary data were collected through various literature sources through desk review. The following data collection methods and instruments were used in the TE, as detailed below:

- Desk Review
- Key Informant Interviews (KII)
- Site Visits

Evaluation team members consisted of the following:

1. Dr Drona Upadhyay – International Evaluation Consultant
2. Dr Laban MacOpiyo – National Consultant

3.2.1. Desk Review

At the beginning of the evaluation during the inception phase, the evaluators undertook a desk review of the documents such as ProDoc, PIRs, Meeting Minutes, MTR Report and Evaluation manuals from UNIDO.

During the TE process, the TE team regularly referred to key documents such as the ProDoc, UNIDO Evaluation Manuals, PIRs, Minutes of meetings including the PSC meetings and supporting documents such as training materials and training reports.

3.2.2. Key Informant Interviews (KII)

Semi-structured questionnaires were used to interview the stakeholders in order to address the TE objectives. The questions were aimed at obtaining both qualitative and quantitative data depending on the role of the stakeholder. The KIIs involved some face-to-face consultations and some virtual meetings with the stakeholders as provided in the Annex.

Where possible, triangulation of results, i.e., comparing information from different sources, such as documentation and interviews, or interviews on the same subject with different stakeholders, was used to corroborate or check the reliability of evidence.

3.2.3. Site Visits

The Evaluator also visited the sites developed with UNIDO fund as demonstration projects and gathered information about the site including updated information on the power outputs. The

sites visited were the demonstration plants of Dandora belonging to Timber Treatment International, Tropical Power and Olivado.

3.2.4. Assessment of Achievement and Ratings

The evaluator assessed the performance of the project against a number of criteria and provided ratings using the following method shown in Table 3.

Table 3 Evaluation Rating Scale

Score		Definition*	Category
6	Highly satisfactory	Level of achievement presents no shortcomings (90% - 100% achievement rate of planned expectations and targets).	SATISFACTORY
5	Satisfactory	Level of achievement presents minor shortcomings (70% - 89% achievement rate of planned expectations and targets).	
4	Moderately satisfactory	Level of achievement presents moderate shortcomings (50% - 69% achievement rate of planned expectations and targets).	
3	Moderately unsatisfactory	Level of achievement presents some significant shortcomings (30% - 49% achievement rate of planned expectations and targets).	UNSATISFACTORY
2	Unsatisfactory	Level of achievement presents major shortcomings (10% - 29% achievement rate of planned expectations and targets).	
1	Highly unsatisfactory	Level of achievement presents severe shortcomings (0% - 9% achievement rate of planned expectations and targets).	

3.3. Theory of Change

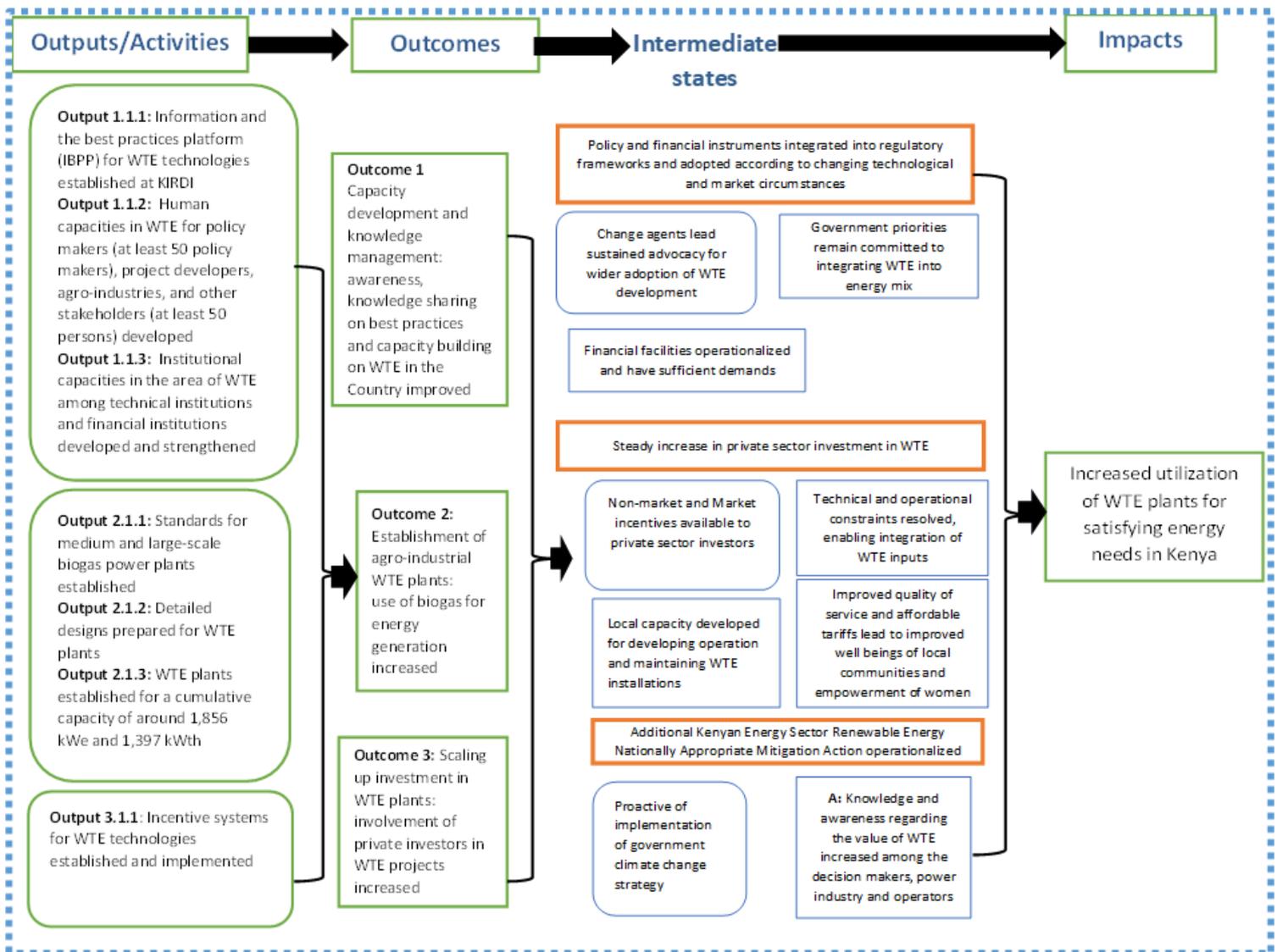
The Theory of Change (ToC) is a narrative description or a diagram that explains how an intervention is expected to work. This means it describes the expected logic of the intervention leading to the change that was intended.

Theory of Change (ToC) and intervention logic are sometimes used interchangeably and the Logframe is one of the main tools to evaluate the intervention logic of a project. There is no description of intervention logic and Theory of Change provided in the ProDoc or any other documents available to the Evaluation team. However, there are clear hierarchy of interventions from activities, outputs to the objective and goal of the project described in the ProDoc.

The key impact of the project as shown in **Error! Reference source not found.** is the “increased utilization of WTE plants for satisfying energy needs in Kenya” which is possible only if all the outputs are achieved, leading to Outcomes and the assumptions coming true.

The ToC for the project is presented visually below in **Error! Reference source not found.** It should be noted that that the text within orange and blue borders are assumptions. While the text inside the orange borders are categories of assumptions while the text within the blue borders are individual assumptions within each category.

Figure 1 Theory Of Change



4. Country and project background

4.2. Project Context and description

4.2.1. Project Context

Climate risks pose serious threats to Kenya's sustainable development goals (SDG). Being the largest economy in East Africa and a population of nearly 48.555 million, Kenya serves as the region's financial, trade and communications hub. The country's economy is largely dependent on rainfed agriculture, and tourism, all of which are susceptible to climate variability and change and extreme weather events.

In parts of Kenya, Somalia and southern Ethiopia, the failure of the 2022 March–May rains exacerbated drought conditions that have prevailed since late 2020 and resulted in a significant deterioration of an already difficult food security situation. Increasing inter-seasonal variability and declining rainfall in the main rainy season have impacted cereal production in recent years (FAO, 2022GoK. 2015). Recurrent droughts and floods—likely to be exacerbated by increasing temperatures, heavy rainfall events and sea level rise—lead to severe crop and livestock losses, famine, and displacement. The 2008–2011 drought caused \$12.1 billion in losses and damage (GoK. 2012a, GoK. 2012b). High population growth in urban areas is leading to expanding informal settlements, which are at risk from water scarcity, flooding and high temperatures and increasing demand to power homes and industries.

Most of the country's coast is low-lying, with coastal plains, islands, beaches, wetlands and estuaries at risk from sea level rise. A sea level rise of 30 cm is estimated to threaten 17 percent (4,600 hectares) of Mombasa with inundation (Kebede et al. 2010) with most coastal counties e.g. Tana recently suffering massive inundation which destroyed many properties and energy generating infrastructure. Models estimate that by 2030 climate variability and extremes will lead to losses equivalent to 2.6 percent of GDP annually. (GoK. 2015, World Bank. 2016).

Climate change is expected to significantly impact multiple sectors of the Kenyan economy. This project directly speaks to and attempts to address the expected impacts of climate change in the energy sector.

Increased evaporation rates and more severe drought threaten Kenya's hydropower production, which accounts for about half of the domestic electricity production. Hydro production is reduced by up to 40 percent in the years with drought, leading to persistent power outages and reliance on more expensive petroleum-based thermal generation (GoK. 2015). Projections of sea level rise and increased heavy precipitation events leading to flooding and landslides put energy, transportation and building infrastructure at risk. Models estimate that in Mombasa as much as \$4.8 billion worth of assets will be exposed to flooding and inundation from sea level rise by 2050, including Port Kilindini, the largest seaport in East Africa. (GoK. 2012a, Kebede et al. 2010).

The overreliance on hydro power sources threatens the security of supply in times of drought. As one of the possible options to address this shortage, the current project aims at promoting the conversion of waste to clean energy as an alternative electricity generation source. Due to the considerable biogas potential and the regulation of an attractive feed-in-tariff system for the biogas technology by the Kenyan Government, biogas technology from anaerobic digestion has been selected for conversion of waste to energy. The most promising sectors for electricity

production from conversion of waste to energy are municipal waste and agro-industrial residues substrates. Municipal waste is not generated at one central location but has to be collected prior to further utilization and biogas effluents have to be dumped or combusted. This leads to logistical problems and additional costs. Agro-industrial residues substrates on other hand are accrued at one place during the processing of the agro produce and it has the following advantages:

- Transport costs for the input substrates can be minimized;
- Electricity and waste heat can be used directly for the processing of agro-products;
- Additional electricity can be fed into the national grid;
- Biogas plant effluent can be used on farm as organic fertilizer.

Due to these advantages, the agro-industrial sector was selected for demonstrating WTE plants while enhancing the processing of agro-produce to be more efficient and sustainable.

In Kenya, agro-industrial wastes are mostly underutilized and, in most cases, disposed of by burning, dumping or unplanned landfilling. Dumping and unplanned landfilling results in methane generation and its subsequent release into the atmosphere causing much higher green house effects than those by carbon dioxide as Methane is a stronger GHG than carbon dioxide. Hence, the avoidance of its release to the atmosphere or its utilization holds great environmental benefits in terms of mitigating GHG emissions and adapting to climate change. It has been estimated that industrial-scale power/co-generation using biogas produced from agricultural residue could abate 1.6 million tonnes of carbon dioxide per year.

4.2.1 Project Description

The United Nations Industrial Development Organization (UNIDO) has just completed the implementation of a GEF supported project called the “Sustainable conversion of waste to clean energy for greenhouse gas (GHG) emission reduction” in Kenya. The project aimed at promoting the conversion of waste to clean energy as an alternative source of electricity generation. The main objective of the project is to promote investments in waste-to-energy (WTE) technologies to increase electrification rate as well as to reduce greenhouse gases (GHG) emissions in the country. The most promising waste sectors for electricity generation from the conversion of WTE were the municipal waste and agro industrial residues. Due to the advantages the agro-industrial residues has over municipal waste, the agro-industrial sector was selected for demonstrating WTE (biogas) power plants while enhancing the processing of agro-produce to be more efficient and sustainable.

The Project consists of three (3) components as described below:

Project Component (PC) 1: Capacity development and knowledge management.

Training as a major activity in this PC, this component focused on awareness and capacity building on WTE to achieve the expected outcome of improved awareness, knowledge sharing on best practices and capacity building in the country. Through trainings, an awareness on potential usage of biogas technologies in potential industries was to be created.

Project Component (PC) 2: Establishment of agro-industrial WTE demonstration plants.

The focus of this component was on establishing demonstration agro-industrial WTE plants in Kenya. Technical assistance for project development was facilitated through a GEF grant. A part

of GEF grant of approximately USD 700,000 was also to be used to provide incentives towards equipment purchase within the limits set by the principles of incremental cost. The co-financing contribution from private investors was expected to be used for establishing the demonstration projects.

Project Component (PC) 3: Scaling up investment in WTE plants.

Under this component, efforts were expected to be made to establish a soft loan scheme with lower interest rate based on partial risk guarantee assured by the Kenyan Government.

Project Component (PC) 4: Monitoring and Evaluation (M&E)

This project component covers the project monitoring and oversight by UNIDO working in close coordination with MoE, MoITED and MEMR. This component also consists of the mid-term review and this terminal evaluation of the Project.

In addition, lesson learning and information dissemination workshops, annual reports to GEF in the form of PIRs also constitute PC 4.

The project outcomes, outputs, indicators and the baseline are summarised in Table 4. There is a fourth Outcome which is related to the M&E of the project, not directly related to the deliverables. Given that this fourth component is not in the logframe, and hence does not have indicators or baseline, it is not included here in Table 4 below.

Table 4 Project Summary

Project Strategy	KPIs/Indicators	Baseline
Component 1 – Capacity development and knowledge management		
Outcome 1.1: Improved awareness, knowledge sharing on best practices and capacity building on WTE in the Country		
Output 1.1.1: Information and best practices platform (IBPP) for WTE technologies established at KIRDI	<ol style="list-style-type: none"> 1. Business plan and annual work plans created. 2. Creation and operation of the centre 	Lack of one-stop technical centre on biogas
Output 1.1.2: : Development of human capacities in WTE for policy makers (at least 50 policy makers), project developers, agro-industries, and other stakeholders (at least 50 persons)	<ol style="list-style-type: none"> 1. Number of trainings organized for policy makers 2. Number of trainings organized for different target groups 3. Number of key policy makers trained (% of female/ male participants) 4. Number of persons (from other target groups) trained (% of female/ male participants) 5. Number of female trainers 	Inadequate capacity among the key policy makers & project developers
Output 1.1.3: Development and strengthening of institutional capacities in the area of WTE among technical institutions and financial institutions (at least 50 persons from each group)	<ol style="list-style-type: none"> 1. Number of trainings organized 2. Number of persons trained (% of female/ male participants) 3. Number of female trainers 	Insufficient local capacity to develop, support, operate & maintain WTE plants

Component 2 – Establishment of agro-industrial WTE plants		
Outcome 2.1: Increased use of biogas for energy generation		
2.1.1 Establishment of standards for medium and large-scale biogas power plants.	Number of standards	As of now, no standards exist for biogas power plants. KEBS & ERC are currently developing standard for domestic and commercial biogas plant
Output 2.1.2: Detailed plant design prepared for WTE plants	Project progress status	Lack of plant design reports for further project development.
Output 2.1.3: WTE plants established for a cumulative capacity of around 1,856 kWe and 1,397 kWth	MW of installed capacity	1. Inadequate commercial WTE plants 2. Agro-industries depend on (fossil-fuel dominated based) electricity and fossil fuel such as fuel oil for thermal energy needs.
Component 3 – Scaling up investment in WTE plants		
Outcome 3.1: Establishment and implementation of incentive systems for WTE technologies		
Output 3.1.1: Establishment and implementation of incentive systems for WTE technologies	1. USD incentives based on incremental cost principle to WTE projects 2. Number of project developers benefitted through the incentive facility	Inadequate financing facilities to attract investments in WTE projects

Stakeholders

Implementing Agency UNIDO was the only GEF Implementing Agency involved in this project and no specific arrangement with other GEF Agencies was sought. Ministry of Energy (MoE) and MoITED (along with KIRDI) were the two main executing partners coordinating with UNIDO. Other partners included MEMR, MoALF, MoF, KEBS and Cooperative Bank of Kenya. Other Stakeholders included the demonstration plant owners.

4.2.1. Project Factsheet

The project factsheet showing key parameters of the project is shown below in Table 5.

Table 5 Project Factsheet

Project title	Sustainable conversion of waste into clean energy to reduce GHG emissions
UNIDO project No. and/or ID	120568
GEF project ID	5154
Region	Africa
Country(ies)	Kenya
Planned implementation start date (for GEF projects, as indicated in CEO endorsement/Approval document)	September 2015
Planned implementation end date (for GEF projects, as indicated in CEO endorsement/Approval document)	November 2019
Actual implementation start date	November 2015
Actual implementation end date	30 June 2023 (with extension ⁵)
GEF Focal Areas and Operational Project (in addition, also indicate whether the project is linked to a GEF programme)	Climate change
Environmental Benefit	Environmental Benefit of the Project is the reduction in GHG emission by producing WTE from agricultural waste which is currently burnt or dumped in landfill sites thus producing GHG.
Implementing agency(ies)	United Nations Industrial Development Organization
Executing partner(s)/entity(ies)	<ul style="list-style-type: none"> • Ministry of Environment and Forestry • Ministry of Energy • Ministry of Industrialization and Enterprise Development • Ministry of Agriculture, Livestock and Fisheries
Donor(s):	N/A

⁵ In total, the project had four no-cost extensions that were discussed/requested by the Project Steering Committee.

Total project allotment (for GEF: project grant)	USD 1,999,998
Total co-financing at design (cash, in-kind, investments and grant)	Cash: USD 5,184,915 In-kind: USD 4,639,803 Investments: USD 395,000 Grant: USD 60,000 Total: USD 9,824,718
Materialized co-financing at project completion (cash and in-kind)	USD 6,728,235 (total of in-kind and cash)
Mid-term review date	From December 2020 to February 2021

5. Project assessment

5.1. Project design

For the purpose and context of this evaluation, the Design of the project is regarded as the project description and the plan, including the Logframe, as proposed in the Project Document (ProDoc) and early phase of the project itself (including decisions made in early meetings).

The ToR requires that this part of the evaluation is undertaken for the following two criteria: Overall Design and Logframe and provide the ratings for them.

5.1.1. Overall Design

For the purpose and context of this terminal evaluation for the WTE project in Kenya, the description and the plan as proposed in the Project Document (ProDoc) and early phase of the project itself (including decisions made in early meetings) is defined as the Design of the project.

Overall, the design of the project is well laid out and tasks are described well. The ProDoc describes the barriers and how the project wants to tackle those barriers by dividing the project into various components, outcomes and outputs. The following barriers are expected to be mitigated by the project.

- Inadequate financing/private sector investment in WTE
- Lack of information sharing on existing projects
- Inadequate local technical capacity for sustainable operation and maintenance
- High costs of installing the systems

The ProDoc has captured the barriers in the sector well and the interventions appear to be suitable.

Ministry of Environment and Forestry (MoEF), Ministry of Energy (MoE), Ministry of Industrialization, Trade and Enterprise Development (MoITED) and Ministry of Agriculture, Livestock and Fisheries. In the evaluator's view, this was the right decision as these ministries are key players in the disciplines which WTE development is related to.

However, there are some shortcomings in the ProDoc. For example, the project has been divided into 4 components, the final component being the M&E. Some of the reporting is done 4 components and related outputs, however PIRs and other progress reports only report on 3 components. Similarly, the logframe consists of only 3 components and leaves out the M&E component.

A chapter is dedicated to the M&E describing the M&E activities, and an M&E plan with a budget has been included in the ProDoc. Dedicated budget lines for M&E activities have been provided, including a budget for the Terminal Evaluation.

Overall Design of the project is **Moderately Satisfactory**.

5.1.2. Logical Framework/Logframe

There is a single objective defined in the Logframe of the project, which is provided with the ToR and also present in the ProDoc:

“To promote investments in WTE technologies to increase electrification and to reduce GHG emission.” The objective is to be achieved through three outcomes and several outputs for each outcome. The objective itself seems to be clear and workable. The outcomes and outputs are generally coherent and logical. Each of the outcomes and outputs have been defined in terms of indicators, targets and the baselines. In addition, sources of verifications of the indicators and the risks (to achieving the objectives, outcomes and outputs) and assumptions (that need to come true to achieve the outcomes/outputs) are also provided. These are adequate in the evaluator’s opinion.

In general, the logical framework is well laid out with clear indicators, including baseline information. The Logframe has been used as a reference in reporting the progress on the project objectives in the Project Implementation Reviews (PIR) by the project coordinator.

Project Outcomes and Outputs in the Logical Framework Analysis appear generally SMART (Specific, Measurable, Achievable, Relevant and Time-bound).

One major drawback of the Logframe is that it does not contain the fourth component of the project despite being included in the ProDoc with several outputs. This inconsistency can give rise to confusion while implementing and evaluating the project.

Based on above, the rating for Logframe is **Moderately Satisfactory**.

5.2. Implementation performance

5.2.1. Relevance

According to the UNIDO Evaluation Manual e-book, the definition of Relevance is said to be “the extent to which the aid activity is suited to the priorities and policies of the target group, recipient and donor.” This consists of the development priorities of the country in question, and the policies and priorities of UNIDO and the donor.

The project is in line with the Government of Kenya development priorities. This project is designed to increase the use of Renewable Energy (RE) whereby decreasing the use of fossil fuel to contribute to the additional generating capacity for the electrical grid extension.

The Mid-term Review (MTR) had assessed the relevance of the project in good detail and there are no significant changes in the country and global context since the MTR, and hence the TE Report would re-emphasize those reasons why the project is still relevant and due to the same reasons as specified in the MTR, as below.

The project is aligned to UNIDO’s mandate to promote Inclusive Sustainable Industrial Development (ISID) in developing countries and economies in transition. The project was also found to be aligned and relevant to The Kenya United Nations Development Assistance Framework (UNDAF) 2018-2022 Strategic Priority 3 on Sustainable and Inclusive Growth cooperation area, which is that the UN will support the Government of Kenya by contributing to sustainable and inclusive growth that is increasingly resilient, green, diversified, competitive and

creating decent jobs and providing quality livelihoods for all. Particularly the UN seeks to enhance institutional (both public and private) and community capacity for increased access to cost-effective and clean energy.

Among many other National and Policies, the project is further aligned with National Climate Change Action Plan (NCCAP 2013-2017) and (NCCAP 2018 – 2022) which presents Kenya’s low-carbon development pathway, the Energy Act, 2006 and Vision 2030 national development agenda aimed at promotion of development and use of renewal energy technologies, local fabrication, strengthening of O&M capacity, reduction of country reliance on imported fossil fuels, increase of electrification access, provision of affordable and reliable energy and mobilization of private sector capital for generation of electricity from renewal energy. The First National Communication of Kenya to UNFCCC, 2002 for instance identified the need for economic incentives, intensified R&D activities, access to appropriate technologies, capacity building and policy formulation in waste management sector, as well as establishment of energy platforms, setting up of demonstration facilities and establishment of district-wide information resource platforms in energy sector.

The project is relevant and contributes toward the achievement of the Sustainable Development Goal 7. Specifically, the objective of Goal 7 is focused on guaranteeing clean and affordable energy for all with the specified objective to “ensure access to affordable, reliable, sustainable and modern energy for all”.

A group of 19 East African countries including Kenya in the Ministerial Consultation meeting held in January 2011 and organized by GEF secretariat identified WTE as one of the priority areas to be considered for East African countries. This project is in line with this identified priority.

Based on the above discussion and analysis, the relevance of the project is **Highly Satisfactory**.

5.2.2. GEF and UNIDO Comparative Advantage

The project in question promotes the use of Waste to Energy technologies with significant potential in reducing GHG emissions and scaling up. The above is in line with GEF Climate Change focal area strategic programme “CCM-3: Promoting the investment in RE technologies.” The GEF Council paper “Comparative Advantages of the GEF Agencies” (GEF/C.31/5rev.1) recognizes a comparative advantage of UNIDO in this strategic programme.

The mandate of UNIDO is to promote Inclusive Sustainable Industrial Development (ISID) in developing countries and economies in transition. UNIDO’s vision is a world where economic development is inclusive and sustainable and economic progress is equitable. UNIDO is well placed to implement this project owing to its experience and expertise in projects related to agro-industries linking access, waste management and productive use activities in other countries. More specifically, UNIDO has proven expertise in developing technology transfer projects on the ground that have direct impact especially in piloting new technologies including WTE, small hydro power and ultra-low head micro hydro power application.

UNIDO has a full-fledged country office in Nairobi, headed by a UNIDO Representative and a number of technical officers who focus on the implementation of the on-going Kenya country programmes and various other projects funded by multilateral funding mechanisms such as the Montréal protocol. Also, UNIDO has a large portfolio with GEF with over 90 projects in climate

change mitigation focal area. This project will also benefit from some of the administrative structures established for the other UNIDO projects.

Under such context, UNIDO is well placed to implement such a programme in Kenya. With its experience, UNIDO can handle the WTE projects and take it to a higher level in the country.

5.2.3. Effectiveness

Overall, the project planned to contribute in the three broad areas:

- Capacity Building
- WTE demonstration plants
- Incentive Scheme for WTE Plants

Each of the areas of activities, achievements and shortcomings will be discussed in the section below.

Table 6 presents the Project's progress made in achieving the outputs against the key performance indicators and targets in the project's M&E Plan/Log-Frame at the time of CEO Endorsement/Approval.

Table 6 Project Achievements

Outputs	End of the Project Target	Actual Achievements
<p>Output 1.1.1: Information and the best practices platform (IBPP) for WTE technologies established at KIRDI</p>	<p>1. Business plan and annual work plan creation within first 3 months of the GEF project start</p> <p>2. Creation and operation of the centre within 6 months of the GEF project start</p>	<ul style="list-style-type: none"> • The legal framework for establishing the IBPP at KIRDI was finalized and approved. • A Business plan of IBPP operationalization was developed. • Capacity assessment of KIRDI and recommendation for the IBPP requirements was conducted. • Biogas laboratory equipment installed and tested, including IT (computers, projector, screen, workstation). • A Biogas guidebook was developed. • Biogas training materials for the IBPP were developed. • Training videos on Biogas technology, focusing on training of trainers, were produced. • Creation and operationalization of IBPP Website, filtered with information and details, was launched in January 2023. • Development of a database for promoting biogas (compilation of existing biogas systems and national stakeholders engaged in WTE sector) for the IBPP website has been completed. • A Waste to Energy (Biogas Technology) Awareness Workshop was conducted in November 2022. • IBPP Brochures, banners and leaflets for knowledge sharing were prepared and disseminated at the WS and launching ceremony. • A Sustainability strategy of the IBPP has been developed and submitted.

<p>Output 1.1.2:</p> <p>Development of human capacities in WTE for policy makers (at least 50 policy makers), project developers, agro-industries, and other stakeholders (at least 50 persons)</p>	<ol style="list-style-type: none"> 1. Conduct at least 2 trainings for policy makers 2. Conduct at least 2 trainings for other target groups 3. Educate and train at least 50 policy makers on WTE potential, technology and project development 4. Train at least 50 personnel from each of the target groups 5. Include at least 20% (of the total participants) women in each training 	<ul style="list-style-type: none"> • 56 policy makers (45 men and 11 women) were trained and shared knowledge on waste to energy solutions. • 16 personnel (13 men and 3 women) of the office of the Principal Secretary in the Ministry of Environment conducted knowledge sharing and monitoring site visit • 40 personnel (33 men and 7 women) from the county offices were trained on how to elaborate county level energy plans. • 12 County Energy Plans were prepared. • A Decentralized Energy Planning Manual was developed and shared. • A Gender analysis was carried out for potential WTE projects. • Networking activities within Biogas Sector (Conferences and Workshops were conducted from July 2022 until December 2022). • Brochures and leaflets for knowledge sharing and dissemination were prepared.
<p>Output 1.1.3:</p> <p>Development and strengthening of institutional capacities in the area of WTE among technical institutions and financial institutions (at least 50 persons from each group)</p>	<ol style="list-style-type: none"> 1. Conduct at least 2 trainings 2. Train at least 50 personnel from different target groups 3. Include at least 20% (of the total participants) women in each training 	<ul style="list-style-type: none"> • 48 persons trained for development and strengthening of institutional capacities in WTE (37 men and 11 women). • 14 KIRDI staff (9 men and 5 women) were trained on operation of IBPP and biogas laboratory technology (in China). • Establishment of a training team within the IBPP and conduct train-the-trainer programme for KIRDI staff, in two phases: <ul style="list-style-type: none"> ○ 13 KIRDI staff (6 men and 7 women) were trained in a 6 day online Biogas Foundation Course. ○ 3 KIRDI staff (2 men and 1 woman) were trained in an Advanced course on Biogas topics in Germany, including visits to four Biogas plants in Germany.

<p>Output 2.1.1: Establishment of standards for medium and large-scale biogas power plants.</p>	<p>Early enforcement of the proposed standard</p>	<ul style="list-style-type: none"> • Assessment of the international standards completed and shared with stakeholders including line ministries. • Roadmap for the development of the standards agreed upon in close consultation with stakeholders including line ministries. • Development of draft Standards for farm and industrial scale systems including revisions of international expert opinions by the German Biogas Association (GBA) completed. • Three Biogas Technical Committee (TC) meetings under KEBS held to refine the Standards for farm and industrial scale systems. • Biogas Standards approved by the Standards Council and Gazette in April 2022. • Two national Biogas workshops were held in 2022 by KEBS to provide: <ul style="list-style-type: none"> ○ An overview of the Kenya Bureau of Standards and its standardization activities ○ A basic understanding of KS 2951:2022, Biogas systems ○ A platform for the biogas sector to share experiences and discuss issues and challenges related to the biogas sector.
<p>Output 2.1.2: Detailed plant design prepared for WTE plants</p>	<p>Detailed plant design reports for the demonstration projects</p>	<ul style="list-style-type: none"> • Pre-feasibility study carried out for the eight sites: Kilifi plantations, Olivado EPZ, Kisumu Municipal wastes, Homabay Slaughter house, Dagoretti Slaughterhouse, Farmers' choice, Taita Estates, Agro-Chemicals and Food Company (ACFC) • Detailed feasibility studies and designs finalized for the proposed Dagoretti biogas plant.

<p>Output 2.1.3:</p> <p>WTE plants established for a cumulative capacity of around 1,856 kWe and 1,397 kWth</p>	<p>1,856 kWe and 1,397 kWth plants supplying electricity and thermal plants energy respectively.</p>	<ul style="list-style-type: none"> • Olivado completed the installation of the Avocado fruit/waste biogas plant with the total installed capacity of 470 kWe plus 422 kWth from the heat recovery system. • Tropical Power completed the installation of the rose waste processing plant and realized the total achieved installed capacity of electricity is 670 kWe. • Timber Treatment International completed the installation of steam plants in Dandora, Nyahururu and Sotik KCC plants with a total cumulative capacity is 16,302 kWth. • Total Generated: 1,140 kW_e and 19,892 kW_{th} • Total lifetime GHG avoided: 485,328⁶
<p>Output 3.1.1:</p> <p>Establishment and implementation of incentive systems for WTE technologies</p>	<p>1. USD 4 million incentive facility established</p> <p>2. At least 15 replication projects benefitted under the facility</p>	<ul style="list-style-type: none"> • Incentive scheme based on incremental cost principle to the tune of USD 700,000 finalized to incentivize project developers and investors • 3 companies benefited from the incentive scheme. • The project continues to implement the rate of USD 300 for every kilowatt installed. • A Linkage was formed with the Fonds d'étude et d'Aide au Secteur Privé (FASEP) programme to support feasibility studies for biogas sites.

⁶ GHG Tracking Tool.

Capacity Building:

The first component of the project was related to Capacity building to get the sector ready with the required knowledge before further interventions would be introduced.

Within the Capacity Building component, various key aspects were envisaged in the ProDoc and the Logframe. These are:

- Establishment of the IBPP platform at KIRDI
- Development of Human Capacity (targeted mainly at Policy Makers, Project Developers and Agri businesses)
- Development of Institutional Capacity (targeted at technical and financial institutions)

The IBPP is hosted at the KIRDI Energy Resources and Energy Efficiency Research Centre (EREE-RC) and is a repository of information and best practices within the biogas sector. UNIDO as part of this project assisted KIRDI along with other stakeholders to host the platform and provide necessary training for KIRDI staff to operate it.

The project contributed to enhancing the technical capacities and knowledge of targeted beneficiaries from the public and private sectors. The training courses overall were good and seem to cover all necessary areas of biogas systems. The courses related to energy planning methodology at the county levels were particularly important to the institutional strengthening of the county governments and the design of energy planning instruments.

Over one hundred people from public and private sectors were trained as part of the project. There was a significant number of women trainees in the trainings conducted as part of WTE project.

It was reported that some of the counties sent senior staff such as County Executive Committee (CEC) Members and Chief Officers (CO) to the training, and it was difficult to follow up as some of those participants had since left their positions. It is understood that in some instances staff with no prior knowledge on energy attended the training and were not able to develop the energy plans as required. This could be one of the reasons why out of 40 counties trained, only 12 energy county plans were developed. However, the regulation guiding the preparation of County Energy Plans (CEP) were yet to be provided to the county Governments and enforced. This could also possibly have been the reason why some counties did not see the urgency to draft their energy plans.

In addition, the County energy planning training were held before the Integrated National Energy Planning Framework (INEP), which provided a standard for developing energy plans, was produced in 2020. Therefore, according to UNIDO, these training were held as sensitising training, rather than one that provided details about developing such energy plans.

Based on the reports, it appears that financial institutions did not participate in the capacity building activities even though there were plans to involve them in the capacity building programme. According to Output 1.1.3 – “Development and strengthening of institutional capacities in the area of WTE among technical institutions and financial institutions (at least 50 persons from each group)” – 50 people from the financial institutions should have been trained. It is very important to sensitise the financial institutions in order for them to understand the risks but also to demonstrate to them how WTE schemes can be financially viable.

WTE Demonstration Plants:

Within the establishment of pilot/demonstration WTE plants component, various key aspects were envisaged in the ProDoc and the Logframe. These are:

- Development of Standards for biogas
- Installation of the WTE demonstration plants

Biogas standards have been developed under this project. Standards for farm and industrial scale systems were prepared taking in international expert opinions, refined by KEBS technical committees. The Biogas Standards were approved by the Standards Council and Gazette in April 2022.

Regarding the installation of demonstration plants, it was envisaged that WTE plants with capacities of 1,856 kW_e and 1,397 kW_{th} would be installed with the project support. As shown in **Error! Reference source not found.**4, the project managed to produce thermal power much more than expected, but the electrical power output has been less than anticipated. However, given that the thermal capacity generation is much higher than planned, the GHG emission reduction is much more than anticipated. According to the Tracking tool, a total of 485,328 t CO₂ will be avoided, which is higher than anticipated value of 144,960 t CO₂.

A scheme at Dagoretti with plans to produce electricity has not materialised due to issues with land lease. The land is owned by the county, and it has not been possible to obtain the lease so far. This could be an issue for future schemes.

There are some discrepancies regarding the actual produced power in various documents produced by UNIDO on the actual amount of power generated from WTE demonstration plants. However, these discrepancies appear to have occurred due to the fact that the actual output of the plants have been more than envisaged in most demonstration schemes. The outputs of each of the demonstration schemes are shown in Table 7.**Error! Reference source not found.**

Table 7 Outputs of the Demonstration Plants

Demonstration Plant	Output (kW _{th})	Output (kW _e)
Olivado	422 kW _{th}	470 kW _e
Tropical Power	-	670 kW _e
TTI – Dandora	6,270 kW _{th}	-
TTI - Nyahururu	6,270 kW _{th}	-
TTI - Sotik	3,762 kW _{th}	-
TOTAL	16,724 kW_{th}	1,140 kW_e

Incentive Scheme for WTE Plants:

The key target of this component has been the establishment of a favourable investment environment using an incentive scheme which is anticipated the replication of WTE projects totalling at least 14 MW_e and 6 MW_{th}, leading to an overall emission reduction of approximately 1.16 million tonnes of CO₂e over the next 10 years of project completion, with 15 WTE schemes enjoying the benefits. According to UNIDO reports, so far three companies – the ones with demonstration schemes - have benefitted from the 700,000 USD scheme based on incremental cost principles, providing 300 USD per kW installed.

This is a key output from the project and is expected to mitigate the current problem of lack of confidence in biogas technology among banks/financial institutions. This means that the banks consider investment in such projects as a high-risk investment and hence demand a higher interest rate. This challenge is highlighted in the ProDoc as being one of the major hurdles against investment in biogas technology.

The scheme was planned to be in place at the beginning of the project with the participation of the government bodies and Co-operative Bank of Kenya. However, it appears that the Bank is apprehensive about participating in the scheme at this stage. The Bank did not participate in at least the last two PSC meetings, and has raised questions about the financial viability of WTE schemes, though this is likely to be due to limited information and knowledge within the Bank about biogas/biomass schemes and their financial viability. This could be an issue for the success of this incentive scheme and hence further work needs to be carried out to resolve this issue.

Additionally, the project envisaged supporting 15 replication projects during the lifetime of the project but according to UNIDO reports, only 3 have benefitted at the end of the WTE project i.e. in over 7 years (from 2015 to 2022). One additional detail is that there were no activities in this component in the whole year ending in 2022.

The above scheme is one of the range of other incentives that can be provided to commercial biogas plants. Currently import duties on domestic biogas digester has been waived but not for commercial systems. It has been pointed out during stakeholder consultations and during project meetings that import duties should be relaxed for commercial systems also to provide further incentives to developers of such schemes. In case of at least one WTE demonstration project, Duty/Tax Exemption procedure took longer than expected which meant that the company had to pay a large penalty for storage of the item while the tax was being cleared. This aspect will need to be addressed by relevant parties.

Based on above, the rating of Effectiveness is **Moderately Satisfactory**.

5.2.4 Efficiency

The evaluation manual describes Efficiency as ‘a measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results’. The TOR guides

the evaluators by asking to *Report on the overall cost-benefit of the project and partner countries' contribution to the achievement of project objectives*. These two definitions are similar to each other and the Evaluators will report on Efficiency following those guidelines in the following sections.

In a country where agro-industries depend on fossil-fuel dominated electricity and fossil fuel such as fuel oil for thermal energy needs, it would be a challenge to change the status-quo of dependence on fossil fuel to powering those industries with biomass based WTE electricity where not many successful examples exist. Under this circumstance, it is clear that the project with a relatively limited intervention (approximately 2 million USD) has been able to leverage a much larger contribution from within the country in terms of co-financing. A status of the co-financing and the beneficiaries is displayed in Table 8.

In addition, the budget allocated was appropriate to pay for the human resources including the in-country staff, external experts and services required to deliver the project to the required standard of quality. Furthermore, the budget also allowed for the cost towards securing equipment and infrastructure within UNIDO funding rules.

Table 8 Co-financing Status

Name of Co-financier	Source of co-financing	Amount received (USD)
Tropical Power	Private	444,067
Timber Treatment International	Private	3,737,963
Olivado EPZ Ltd	Private	1,500,000
KIRDI	Recipient Country Govt.	1,046,205
Total		6,728,235

With regards to co-financing it should be noted that large sums of money were pledged by Counties and some private sector as co-finance which did not materialize. The total promised co-financing was close to 10 million USD as shown in Table 9. According to UNIDO, at the concept development stage, the stakeholders that were approached were very receptive of the project and pledged co-finance and provided the written confirmation readily of their commitment to provide the co-financing to the project. However, when the funding was received from GEF to start implementation of the project, these stakeholders were not able to commit the said resources and looked forward to 100% financing by the project. A call for proposal was then advertised in the media and only those who committed to provide the resources were selected.

Table 9 Co-finance Promised

Sources of Co-financing	Name of Co-financier (source)	Type of co-financing	co-financing Amount (\$)
National Government	MoIED	In-kind	320,000
National Government	MoE	In-kind	300,000
National Government	Migory County	In-kind	1,200,000
National Government	Migory County	Cash	800,000
National Government	Kenya Meat Commission	In-kind	820,000
Private Sector	Green Energy Africa	In-kind	156,250
Private Sector	Strathmore University	In-kind	150,000
Private Sector	Biogas Power Holding	Cash	105,708
Private Sector	Biogas Power Holding	In-kind	82,981
Private Sector	Keekonyokie Butchers Company Limited	Investment	395,000
Private Sector	Dagoretti Environment Management Association (DEMA)	In-kind	476,470
Private Sector	Sosian Energy Limited	Cash	3,500,000
Private Sector	Agro-Chemicals and Food Company Limited	Cash	211,417
Private Sector	Agro-Chemicals and Food Company Limited	In-kind	52,854
Private Sector	Farmer's Choice Ltd	Cash	10,000
Private Sector	Farmer's Choice Ltd	In-kind	552,000
Private Sector	Olivado	Cash	497,790
Private Sector	Olivado	In-kind	44,248
GEF Agency	UNIDO	Grant	60,000
GEF Agency	UNIDO	In-kind	90,000
Total Co-financing			9,824,718

Under the circumstances, as mentioned above, the project was undertaken with a good degree of efficiency though the project time period was extended four times – with one extension inevitable due to the Pandemic, as it was beyond the control of the project

implementation team. As the project was delayed, the activities were not in line with the original plans but the overall cost did not increase. As per the information available, no extra staff were recruited solely because of the project extension and most of the UNIDO personnel are employed on a long-term basis who work on many projects concurrently.

There were delays in the project including from suppliers of equipment. Also, it took longer than anticipated to release the cash from the banks. These delays cost money to the developers and this goes against the objective of making WTE more accessible and scale up their use.

Based on the discussion above, the rating for Efficiency is given as **Satisfactory**.

5.2.5 Progress toward Impact

Progress toward Impact assesses long term effects of the outputs of the project. It only assesses progress, and not actual impact as it may take much longer after the end of the project for the impacts to be visible.

The project aimed at promoting investments in WTE technologies to increase electrification and to reduce GHG emission in Kenya. This objective will take longer than the project lifetime but some progress towards achieving this objective have been made.

Capacity Building and awareness raising activities are useful and raise the profile of WTE in the country through publications and awareness events.

The project is not expected to completely transform the energy sector but is a demonstration project where WTE systems are installed with support from UNIDO to showcase best practice examples with a view to scaling up the technologies within the country by way of demonstration. Five demonstration schemes were supported which should demonstrate to the private sector and the government and provide evidence that the WTE technology is feasible and helps reduce greenhouse gases.

Setting up of the incentive scheme using the seed money from GEF should also support the cause of scaling up, though this component of the project has not progressed as anticipated.

Based on above, rating for Progress toward Impact is **Moderately Satisfactory**.

5.2.6 Sustainability of project outcomes

Under the Sustainability criterion, the TOR requires to report on the risks and vulnerability of the project, considering the likely effects of socio-political and institutional changes in partner countries, and its impact on continuation of benefits after the project ends, specifically the financial, socio-political, institutional framework and governance, and environmental risks. Clearly, not every project will have all the risks as mentioned above or even it a project does have all the risks, not all risks are equal.

Sustainability of this UNIDO project in Kenya will mainly depend overall on the certain aspects of the project, as described in the following text.

Capacity Building is one of the key aspects contributing to the sustainability of project benefits. Over 100 people were trained in various aspects of WTE which will assist in improving the knowledge and also passing it on to other people.

KIRDI was trained in providing training to other individuals and institutions, which means that the need for hiring expensive trainers from overseas will be reduced. In this sense, KIRDI will transfer knowledge by training Country Policymakers, Finance organizations, Students and other interested stakeholders. This should work towards sustainability, although follow up from UNIDO/KIRDI is required, to make sure the envisioned capacity building initiatives take place.

As part of the project, the creation and operationalization of a webpage featuring the Information Best Practices Platform on Waste-to Energy Technologies (IBPP) was initiated⁷. The IBPP is hosted at the KIRDI Energy Resources and Energy Efficiency Research Centre (EREE-RC) and is a repository of information and best practices within the biogas sector. The platform provides necessary linkages within the sector by offering specific biogas training programmes as well as biogas testing services. At the time of writing, the website still has limited functionality.

Commercial banks still appear to be circumspect about investing in WTE projects as has been highlighted during the interviews and during PSC meetings. Stakeholders during a survey reported that the major challenges in biomass electricity production were the unfavourable policy environment and access to credit. The survey also found a need for financial modelling and capacity building of financial institutions so that they understand the risks and sustainability associated with WTE generation schemes.

Additionally, the issue of feedstock availability has been highlighted as a concern for the sustainability of WTE schemes. Based on the interviews carried out, it is understood that a WTE generation plant (Tropical Power) had planned to use baby corn stalks (after the baby corn had been harvested) as the major feedstock for gas generation after a feasibility study report. However, due to reasons such as competing use of the feedstock (such as animal feed) and lower production of the feedstock than anticipated by the feasibility study, the feedstock available for the WTE generation plant was lower than the required quantity by the plant. It should be noted that this issue arose before the intervention by UNIDO under this project. However, unavailability or a reduced availability of the feedstock is an issue which can affect the sustainability of a WTE or any biomass power project. Intervention by UNIDO assisted Tropical Power to diversify the feedstock by contributing towards modifying the system so that alternative feedstocks such as Rose waste could be used to produce gas, which can then be subsequently used to produce electricity using gas turbines.

Finally, as highlighted in Chapter 4.2.3 - Effectiveness, the Incentive scheme for WTE (Component 3) needs to be reviewed if possible as it is not achieving what it is expected to achieve. According to the Logframe, fifteen (15) schemes were to be supported under this scheme within the lifetime of the project, with the establishment of a 4 million USD incentive scheme. The project has not been able to achieve this output, which is directly linked to the sustainability of the UNIDO intervention to create a “favourable investment environment through creation of incentive scheme”⁸.

⁷ The Information Best Practices Platform on Waste-to Energy Technologies (IBPP) website can be accessed at <https://energyresources.kirdi.go.ke/ibpp-2>

⁸ ProDoc, Section A.5., page 16.

Based on the above, the rating for Sustainability is **Moderately Unsatisfactory**.

5.3. Assessment of monitoring and evaluation systems

GEF has set minimum requirements for all GEF funded projects regarding the M&E as set out in the GEF M&E Policy⁹. According to the minimum requirements It needs to include a concrete and fully budgeted M&E plan by the time of CEO endorsement for full-sized projects (FSP) and CEO approval for medium-sized projects (MSP). The M&E plan is also required to contain as a minimum the following – some of which are relevant also to the Logframe, which is also discussed elsewhere in the report:

- SMART indicators for results (outcomes etc)
- Baseline for the project
- Identification of reviews and evaluations that will be undertaken such as mid-term reviews or evaluations of activities
- Organizational set-up and budgets for monitoring and evaluation

While evaluating the following criteria, the above will considered as to whether those were met.

5.3.1 M&E design

This criterion is evaluated based on the documentation produced at the time of inception of the project, which consists of the ProDoc including the Logframe.

The ProDoc has set aside a chapter on Monitor and Evaluation where it details the activities to be carried out within the M&E process for the project, as it recognises that “the Monitoring of project progress is essential for the adequate and timely delivery of results.” Project Monitoring and Evaluation has been designated as a component (Project Component 4) of the project in the ProDoc though it does not feature in the Logframe (which is described as Project Results Framework in the ProDoc).

The ProDoc also specifies the monitoring plan for mid-term and terminal evaluation. Even though the ProDoc says that a mid-term M&E will not be carried out because it was a medium-sized project, it was actually conducted for this project. It describes in sufficient detail what the final/terminal evaluation will assess – which includes, as per the ProDoc the impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefit goals. The final evaluation, the document says, will also provide recommendations for follow-up activities. The identification of the mid-term and terminal evaluation is a minimum requirement for the M&E plan produced at the design phase of the project. This minimum requirement is met.

The Project Document specifies other means of M&E that the project will use. These include regular reports on activities, meetings, field visits, gender analysis to assist with

⁹ The GEF Monitoring and Evaluation Policy 2010, available at <http://www.thegef.org/sites/default/files/documents/gef-me-policy-2010-eng.pdf>

gender mainstreaming, and annual reports submitted to GEF secretariat in the form of Project Implementation Reviews (PIRs).

5.3.2 M&E plan implementation

This section will broadly assess whether the M&E plan were implemented as described in the design phase of the project, and highlighted in Chapter 0.

Project Steering Committee (PSC) meetings were held once a year and the minutes of those meetings were produced. In addition, Annual reports – in the form of Project Implementation Reviews (PIR) - have been produced for every year as required, to be submitted to GEF.

Similarly, specific reports such as training report, project progress reports, budget reports, and visit reports were prepared and distributed to relevant stakeholders.

Several issues used to be highlighted in the PSC meetings as part of the M&E activities. Relevant stakeholders then committed to working on the issue and come back. But this was greatly hindered by the fact that there was only one meeting every year, the issue in question appeared to take a year to be resolved. It is evident from the PSC meeting minutes that some questions raised in one PSC meeting were responded in the next PSC meeting, which took place after one year. It should be noted that it was agreed in the inaugural PSC meeting to hold these meetings every six months.

5.3.3 Budgeting and funding for M&E activities

A separate budget of 180,000 USD had been set aside for M&E activities, out of which 80,000 is contributed by GEF while the remaining 100,000 expected to be funded through in-country co-finance.

The project managers have been generally responsive to request for change during M&E processes such as PSC meetings, although infrequent PSC meetings may have hindered this process to some extent.

Based on the 3 sections above, the rating for M&E is **Highly Satisfactory**.

5.4. Gender mainstreaming

The UNIDO Policy on gender equality and the empowerment of women and its addendum, issued respectively in April 2009 and May 2010 (UNIDO/DGB(M).110) and UNIDO/DGB(M).110/Add.1), provides the overall guidelines for establishing a gender mainstreaming strategy and action plans to guide the process of addressing gender issues in the Organization's industrial development interventions. The Evaluator followed the above guidelines and assessed the gender mainstreaming aspect of the project.

ProDoc extensively covers the gender issues. It says that "particular attention will be paid to gender aspects and it is anticipated that a gender analysis will be carried out during

the inception phase to facilitate gender mainstreaming throughout project implementation.”

A “Gender Mainstreaming Report” was prepared to guide the project team in gender mainstreaming of the project intervention. In addition, gender-sensitive recruitment is practiced when hiring new staff and consultants, apart from training the existing project staff on gender issues. Similarly, gender dimensions are considered in all decision-making processes. The PSC members recruitment emphasized on inclusion of women from the stakeholders. Invitation letters sent out to institutions encouraged them to nominate women to participate in the training as participants or trainers. Gender dimensions were considered in all data collection and assessment activities.

Despite what has been said above, it is noteworthy that the ProDoc had recognised that this intervention in Kenya is expected to have limited direct influence over gender equality and/or women’s empowerment in the country and therefore could be classified as a project with “limited gender dimensions” according to the UNIDO Project Gender Categorization Tool. Due to social and cultural reasons, it is not always possible to have a gender balance in every aspect of the project, particularly in a technical project in which expertise available is generally dominated by male gender.

Based on the above, Gender Mainstreaming in project is **Satisfactory**.

5.5. Performance of Partners

5.5.1 UNIDO

UNIDO project team has designed the project reasonably well, as also described earlier in the “Design” section of the report. At the beginning of the project, management arrangements were adequate. Roles and responsibilities were communicated and clarified to partners well.

The project team – both in Vienna and Nairobi – had to change the approach and method due to COVID-19 pandemic that started while the project was being implemented, which required the teams to modify the implementation modalities, without much time for preparation. This affected the project timeline even though UNIDO teams appear to have handled it as best as possible. Some meetings and capacity building activities had to be postponed or arranged virtually.

There were two changes in Project Manager in Vienna during the project, meaning there were three project managers during the lifetime of the project, which slightly affected the project progress.

M&E and reporting system was introduced from the very beginning, and in line with ProDoc.

Project team (PMU) in the field has performed its duties reasonably well. Taking into account the pandemic situation, the team successfully transferred activities to online as much as possible.

However, the data presented in the PIRs, particularly on installed capacity are inconsistent, which should be addressed.

UNIDO project management has been praised by the stakeholders regarding the coordination of the activities such as capacity building, communication and organisation of tours overseas.

Performance of UNIDO is given a rating of **Satisfactory**.

5.5.2 National Counterparts

One of the key outputs of this project is the establishment of Information and Best Practices Platform (IBPP) at the Kenya Industrial Research & Development Institute (KIRDI). KIRDI is a government institute under the Ministry of Trade, Investment and Industry, and a key partner in the project. KIRDI have supported the project well and coordinated with UNIDO to undertake numerous training and establishment of IBPP and the laboratory.

Representatives from the Government and the private sector were part of the Project Steering Committee (PSC), who attended the PSC meetings on a regular basis and participated actively raising questions for action and clarifications. A significant amount of co-finance was pledged during the inception phase of the project, as specified in the CEO Endorsement document. Some counterparts did provide the co-financing but others did not, as seen in Table 8 and Table 9¹⁰.

Performance of national counterparts is given a rating of **Satisfactory**.

5.5.3 Donors

GEF as a donor has done its duty in providing timely funds and understanding the situation on the ground and agreeing to multiple no-cost extensions of the project period.

In addition, GEF accepted the opportunity to scale up WTE in Kenya which matches its own and Government of Kenya priorities. Choosing to partner with UNIDO was a good decision given a longstanding experience and comparative advantage of UNIDO.

Performance of Donor is given a rating of **Satisfactory**.

5.6. Overall rating table

Following on from the discussions in the report and as indicated earlier,

Table 10 below summarises the ratings for various criteria.

¹⁰ Kindly refer to Section 0 of the report for the co-financing details.

Table 10 Ratings Table

#	Evaluation criteria	Rating	Numerical Rating
A	Progress toward Impact	Moderately Satisfactory	55%
B	Project design	Moderately Satisfactory	60%
1	Overall design	Moderately Satisfactory	60%
2	Logframe	Moderately Satisfactory	60%
C	Project performance	Moderately Satisfactory	60%
1	Relevance	Highly Satisfactory	95%
2	Effectiveness	Moderately Satisfactory	60%
3	Efficiency	Satisfactory	75%
4	Sustainability of benefits	Moderately Unsatisfactory	40%
D	Cross-cutting performance criteria	Satisfactory	85%
1	Gender mainstreaming	Satisfactory	80%
2	M&E	Highly Satisfactory	90%
E	Performance of partners	Satisfactory	80%
1	UNIDO	Satisfactory	80%
2	National counterparts	Satisfactory	80%
3	Donor	Satisfactory	80%
F	Overall assessment	Moderately Satisfactory	65%

6. Conclusions and recommendations

6.1. Conclusions

The following conclusions are drawn after the terminal evaluation data review and stakeholder consultations.

1. Some candidates selected for the County Energy Planning training were not appropriate to the training provided which resulted in the knowledge gained not being fully utilised.¹¹
2. Given that PSC meetings were only held annually, PSC meetings were not able to follow up on issues promptly and had to wait for a whole year for the next PSC meeting to take place and raise such issues.¹²
3. Training of KIRDI with a focus on it providing training to other stakeholders including financial institutions is a positive development, though at the time of writing, the online IBPP, has limited functionality.
4. Based on interviews and PSC meeting discussions, access to finance is the biggest hurdle with banks not yet open to investing in WTE and biogas projects.
5. Kenya's institutional and regulatory framework presents a challenge for the utilization of biowastes and agricultural residues for bioenergy electricity generation. It is difficult to secure financing for commercial-scale plants through local financial institutions, and the government's support in arranging financing for such projects is limited at this stage.

6.2. Recommendations

The following are the recommendations provided, based on the conclusions above, for execution by institutes in bold at the end of each recommendation.

1. In order to ensure the future success of biomass power generation projects, it is vital to undertake assessment of current and future biomass resource availability early on in WTE. **UNIDO, Project Developers**
2. Appropriate screening of the candidates should be carried out and if necessary, the screening procedure should be reviewed and agreed with stakeholders so that right set of candidates are selected for the corresponding training during any

¹¹ Refer to Section 0 (sub-heading "Capacity Building") of the report.

¹² Refer to Section 0 of the report.

future training such as the training on County Energy Plans. **UNIDO, Stakeholders**

3. It is recommended that PSC meetings be held at least twice a year – one of which could be a virtual one. As a minimum, there should be a mechanism for PSC members to follow up on issues raised in a meeting without having to wait a whole year to query the progress on the issue. **UNIDO, PSC**
4. UNIDO and other stakeholders should monitor progress of KIRDI's provision of training to other institutions utilising the training of trainers received by KIRDI personnel under this UNIDO project. **UNIDO Country Office, Stakeholders**
5. It is recommended to engage the interest of financial institutions and raise their confidence in investing in biomass energy sector through awareness raising activities and capacity building using tools such as financial modelling to understand the sustainability of such projects beyond project completion. **UNIDO**

6.3. Lessons Learned

- Given that there is likelihood of some delays and interruptions when project managers are changed, as far as possible, Project Manager should not be changed during the implementation of a project. In case this is not possible, knowledge transfer and handover process undertaken from one project manager to another ensures no or little loss of institutional memory.
- Financial Institutions in countries such as Kenya still have a relatively low level of awareness about Waste to Energy technologies or biomass energy technologies in general. Capacity building in this sector for these institutions is key to replication of such projects in countries like Kenya.
- Careful assessment of current and future availability and supply of feedstock for WTE or any biomass based energy generation scheme is important for smooth running of these types of energy plants.
- Land lease issues can delay or stop installation of the WTE schemes and hence ensuring that sufficient time is allowed to study any issues such as land lease is likely to improve the possibility of such schemes being developed in time.

7. Annexes

Annex 1 - List of Documents reviewed

- Project Document (CEO Approval) – ProDoc – Approval date: Sept, 2015. Source: UNIDO
- Mid-Term Evaluation Report – February, 2021. Source: UNIDO
- Annual Project Implementation Reports (PIR) (Total of 6 reports). Source: UNIDO
 - o PIR, 2017
 - o PIR, 2018
 - o PIR, June 2019
 - o PIR, June, 2020
 - o PIR, June, 2021
 - o PIR, June 2022
- Other documents such as Project Delivery Reports (PDR). Source: UNIDO
 - o Project Delivery Report, 2015-2021
- Project Steering Committee (PSC) meeting minutes. Source: UNIDO
 - o PSC meeting Minutes, 18 May 2017 (Inaugural meeting)
 - o PSC meeting Minutes, 18 July 2018
 - o PSC meeting Minutes, 24 April 2019
 - o PSC meeting Minutes, 4 June 2020 (Virtual)
 - o PSC meeting Minutes, 2 June 2021 (Virtual)
 - o PSC Meeting Minutes, 18 May 2022
 - o PSC Meeting Minutes, 28 October 2022
 - o PSC Meeting Minutes, 9 March 2023
- Visit reports
- Training Reports
- Feasibility Study reports
- Various publications and videos
- WTE Plant Progress Reports
- Report on Incentive Scheme

Annex 2: List of interviewees



STAKEHOLDER CONSULTATION ON FINAL EVALUATION OF UNIDO'S WASTE TO ENERGY STAKEHOLDERS INTERVIEWED

S/N	Organization/Institution/Company	Main Contact Information
1	Timber Treatment International Limited (Has three sites; Dandora KCC, Nyahururu KCC and Sotik KCC)	Contact Person: Mr. Shashiraj Manjunath Goli
		Position: General Manager
		Web site : www.ttiatec.co.ke
		Address: P.O. BOX 3166-30100; Off Kaptagat Road, Behind New KCC, Eldoret – Kenya.
2	Tropical Power Kenya Limited	Contact Person: Mr. Christopher Macharia
		Position: Site Engineer
		Website: www.tropicalpower.com
		Address: P.O. Box 1612-00502, Nairobi, Kenya
3	Olivado EPZ	Contact Person; Mr. Hannes Mutingh
4	Dagoretti Slaughterhouse	Mr. Murimi Njehira
		Dagoretti Environmental Management Association
5	Kenya Industrial Development and Research Institute (KIRDI)	1.The Director General
		2. Mr. Nathan Bogonko.
6	Kenya Bureau of Standards (KEBS)	Mr. Alex Mboa
7	Ministry of Energy	Mr. Paul Mbuthi
8	Ministry Of Environment and Forestry (GEF OFP)	Mr. Kennedy Olwasi
9	Ministry Of Industries, Trade and Cooperatives	Ms. Lydia Mwenga
10	Ministry of Agriculture	Mr. David Njogu
11	Kenya Biogas Stakeholders Network (Bio-Net)	Mr. David Jesse, CEO
12	UNIDO HQ, Vienna	Mr. Naoki Torii
13	UNIDO Country Office, Kenya	Mr. Zacharia Munga

Annex 3: Latest Expenditure status¹³

		PROJECT DELIVERY REPORT		Project:	120568 - SUSTAINABLE CONVERSION OF WASTE INTO CLEAN ENERGY TO REDUCE GHG EMISSIONS IN KENYA	Project Manager:	Naoki Torii	Project Validity Status:	12.11.2015 - 30.06.2023 Implement
Reporting Period:	02.11.2015 - 05.06.2023	Project Theme:	Energy and Environment	Country:	Kenya	Region:			Africa
Sponsor Nr.	Sponsor	Grant	Grant Description	Fund	Currency	Grant Status	Grant Validity		
400150	GEF - Global Environment Facility	2000003217	GFKEN_120568	GF	USD	Authority to implement	02.11.2015 - 30.06.2023		

	Description	Released Budget Current Year (a)	Obligations Current Year (b)	Disbursements Current Year (c)	Expenditures Current Year (d=b+c)	Total Agreement Budget (e)	Released Budget (f)	Obligations + Disbursements (g)	Funds Available* (h=f-g)	Support Cost (i)	Total Expenditures (j=g+i)
2000003217											
120568-1-02-01	OP 1: Capacity Building on WTE	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
1100	Staff & Intern Consultants	0.00	0.00	0.00	0.00	48,217.80	48,217.80	48,217.80	0.00	0.00	48,217.80
1500	Local travel	1,676.50	0.00	187.49	187.49	16,870.94	16,870.94	15,381.93	1,489.01	0.00	15,381.93
1600	Staff Travel	202.00	0.00	202.00	202.00	202.00	202.00	202.00	0.00	0.00	202.00
1700	Nat.Consult./Staff	0.00	0.00	0.00	0.00	97,457.07	97,457.07	97,457.07	0.00	0.00	97,457.07
2100	Contractual Services	576.83	403.05	689.21	1,092.26	40,064.14	40,064.14	40,579.57	(515.43)	0.00	40,579.57
3000	Train/Fellowship/Study	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3500	International Meetings	0.00	0.00	0.00	0.00	26,954.78	26,954.78	26,954.78	0.00	0.00	26,954.78
4500	Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5100	Other Direct Costs	0.00	0.00	0.00	0.00	10,435.25	10,435.25	10,435.25	0.00	0.00	10,435.25
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22,707.42	22,707.42
120568-1-02-01	Total	2,455.33	403.05	1,078.70	1,481.75	240,201.98	240,201.98	239,228.40	973.58	22,707.42	261,935.82
120568-1-03-01											
120568-1-03-01	OP 2: Biogas for Energy Generation	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
1100	Staff & Intern Consultants	0.00	0.00	0.00	0.00	117,097.32	117,097.32	117,097.32	0.00	0.00	117,097.32
1500	Local travel	0.00	0.00	0.00	0.00	41,216.81	41,216.81	41,216.81	0.00	0.00	41,216.81
1700	Nat.Consult./Staff	875.07	0.00	0.00	0.00	208,545.55	208,545.55	207,670.48	875.07	0.00	207,670.48
2016	2016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2100	Contractual Services	0.00	(1,722.14)	2,067.57	345.43	254,313.82	254,313.82	254,659.25	(345.43)	0.00	254,659.25
3000	Train/Fellowship/Study	0.00	0.00	0.00	0.00	44,057.91	44,057.91	44,057.91	0.00	0.00	44,057.91
3500	International Meetings	0.00	0.00	0.00	0.00	13,277.62	13,277.62	13,277.62	0.00	0.00	13,277.62
4300	Premises	0.00	0.00	0.00	0.00	208.38	208.38	208.38	0.00	0.00	208.38
4500	Equipment	0.00	0.00	0.00	0.00	10,229.99	10,229.99	10,229.99	0.00	0.00	10,229.99
5100	Other Direct Costs	0.00	0.00	0.00	0.00	21,967.98	21,967.98	21,967.98	0.00	0.00	21,967.98
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67,486.97	67,486.97
120568-1-03-01	Total	875.07	(1,722.14)	2,067.57	345.43	710,915.38	710,915.38	710,385.74	529.64	67,486.97	777,872.71

* Does not include Unapproved Obligations

¹³ As of 05/06/2023.



PROJECT DELIVERY REPORT

Project:	120568 - SUSTAINABLE CONVERSION OF WASTE INTO CLEAN ENERGY TO REDUCE GHG EMISSIONS IN KENYA	Project Manager:	Naaki Torii	Project Validity Status:	12.11.2015 - 30.06.2023 Implement
Reporting Period:	02.11.2015 - 05.06.2023	Project Theme:	Energy and Environment	Country:	Kenya
Sponsor Nr.	Sponsor	Grant	Grant Description	Fund	Currency
400150	GEF - Global Environment Facility	2000003217	GFKEN_120568	GF	USD
					Grant Status
					Authority to implement
					Grant Validity
					02.11.2015 - 30.06.2023

	Description	Released Budget Current Year (a)	Obligations Current Year (b)	Disbursements Current Year (c)	Expenditures Current Year (d=b+c)	Total Agreement Budget (e)	Released Budget (f)	Obligations + Disbursements (g)	Funds Available* (h=f-g)	Support Cost (i)	Total Expenditures (j=g+i)
120568-1-04-01	OP 3: Establishment of incentive systems	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
1100	Staff & Intern Consultants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1500	Local travel	0.00	0.00	0.00	0.00	7,234.58	7,234.58	7,234.58	0.00	0.00	7,234.58
1600	Staff Travel	0.00	0.00	0.00	0.00	390.00	390.00	390.00	0.00	0.00	390.00
1700	Nat.Consult./Staff	0.00	0.00	0.00	0.00	69,332.57	69,332.57	69,332.57	0.00	0.00	69,332.57
2100	Contractual Services	5,887.25	(4,731.97)	5,513.49	781.52	595,494.12	595,494.12	590,388.39	5,105.73	0.00	590,388.39
3000	Train/Fellowship/Study	0.00	0.00	0.00	0.00	22,501.60	22,501.60	22,501.60	0.00	0.00	22,501.60
3500	International Meetings	0.00	0.00	0.00	0.00	765.00	765.00	765.00	0.00	0.00	765.00
4500	Equipment	0.00	0.00	0.00	0.00	1,597.03	1,597.03	1,597.03	0.00	0.00	1,597.03
5100	Other Direct Costs	0.00	0.00	0.00	0.00	7,461.77	7,461.77	7,461.77	0.00	0.00	7,461.77
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66,431.74	66,431.74
120568-1-04-01	Total	5,887.25	(4,731.97)	5,513.49	781.52	704,776.67	704,776.67	699,670.94	5,105.73	66,431.74	766,102.68
120568-1-05-01	Project Management Cost	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
1100	Staff & Intern Consultants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1500	Local travel	40,246.55	9,784.22	8,956.53	18,740.75	54,305.28	54,305.28	32,799.48	21,505.80	0.00	32,799.48
1700	Nat.Consult./Staff	0.00	902.23	1,336.87	2,239.10	103,445.75	103,445.75	105,684.85	(2,239.10)	0.00	105,684.85
2100	Contractual Services	10,778.24	0.00	4,058.51	4,058.51	12,711.06	12,711.06	5,991.33	6,719.73	0.00	5,991.33
3000	Train/Fellowship/Study	16,694.43	0.00	17,283.69	17,283.69	18,337.81	18,337.81	18,927.07	(589.26)	0.00	18,927.07
3500	International Meetings	0.00	10,441.38	5,378.87	15,820.25	4,147.64	4,147.64	19,967.89	(15,820.25)	0.00	19,967.89
4500	Equipment	0.00	0.00	0.00	0.00	1,658.40	1,658.40	1,658.40	0.00	0.00	1,658.40
5100	Other Direct Costs	767.29	0.00	480.92	480.92	2,648.92	2,648.92	2,362.55	286.37	0.00	2,362.55
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17,630.44	17,630.44
120568-1-05-01	Total	68,486.51	21,127.83	37,495.39	58,623.22	197,254.86	197,254.86	187,391.57	9,863.29	17,630.44	205,022.01

* Does not include Unapproved Obligations



PROJECT DELIVERY REPORT

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Reporting Period:	02.11.2015 - 05.06.2023	Project Theme:	Energy and Environment	Country:	Kenya
Sponsor Nr.	Sponsor	Grant	Grant Description	Fund	Currency
400150	GEF - Global Environment Facility	2000003217	GFKEN_120568	GF	USD
					Grant Status
					Authority to implement
					Grant Validity
					02.11.2015 - 30.06.2023

	Description	Released Budget Current Year (a)	Obligations Current Year (b)	Disbursements Current Year (c)	Expenditures Current Year (d=b+c)	Total Agreement Budget (e)	Released Budget (f)	Obligations + Disbursements (g)	Funds Available* (h=f-g)	Support Cost (i)	Total Expenditures (j=g+i)
120568-1-51-01	Effective Assessment of Outputs	USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
1100	Staff & Intern Consultants	13,725.95	0.00	0.00	0.00	31,556.48	31,556.48	17,830.53	13,725.95	0.00	17,830.53
1500	Local travel	0.00	0.00	0.00	0.00	6,743.57	6,743.57	6,743.57	0.00	0.00	6,743.57
1700	Nat.Consult./Staff	0.00	0.00	0.00	0.00	103,737.93	103,737.93	103,737.93	0.00	0.00	103,737.93
2100	Contractual Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3000	Train/Fellowship/Study	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5100	Other Direct Costs	0.00	0.00	0.00	0.00	4,811.13	4,811.13	4,811.13	0.00	0.00	4,811.13
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,646.61	12,646.61
120568-1-51-01	Total	13,725.95	0.00	0.00	0.00	146,849.11	146,849.11	133,123.16	13,725.95	12,646.61	145,769.77
2000003217	Total	91,430.11	15,076.77	46,155.15	61,231.92	1,999,998.00	1,999,998.00	1,969,799.81	30,198.19	186,903.18	2,156,702.99
120568	USD Total	91,430.11	15,076.77	46,155.15	61,231.92	1,999,998.00	1,999,998.00	1,969,799.81	30,198.19	186,903.18	2,156,702.99

* Does not include Unapproved Obligations

Annex 4: Terms of Reference



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE

Independent terminal evaluation

Sustainable conversion of waste into clean energy to reduce GHG emissions

UNIDO Project No.: 120568

GEF ID: 5154

MAY 2022

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Project background and overview

1. Project factsheet

Project title	Sustainable conversion of waste into clean energy to reduce GHG emissions
UNIDO project No. and/or ID	120568
GEF project ID	5154
Region	Africa
Country(ies)	Kenya
Planned implementation start date (for GEF projects, as indicated in CEO endorsement/Approval document)	September 2015
Planned implementation end date (for GEF projects, as indicated in CEO endorsement/Approval document)	November 2019
Actual implementation start date	November 2015
Actual implementation end date	October 2022
GEF Focal Areas and Operational Project (in addition, also indicate whether the project is linked to a GEF programme)	Climate change
Implementing agency(ies)	United Nations Industrial Development Organization
Executing partner(s)/entity(ies)	<ul style="list-style-type: none"> • Ministry of Environment and Forestry • Ministry of Energy • Ministry of Industrialization and Enterprise Development • Ministry of Agriculture, Livestock and Fisheries
Donor(s):	N/A
Total project allotment (for GEF: project grant)	USD 1,999,998
Total co-financing at design	Cash: USD 5,184,915

(in cash and in-kind)	In-kind: USD 4,639,803
Materialized co-financing at project completion	Cash: USD 5,184,915
(in cash and in-kind)	In-kind: USD 4,639,803
Mid-term review date	From December 2020 to February 2021

(Source: Project document)¹⁴

2. Project context

Kenya is highly vulnerable to climate change since the key drivers of the economy (agriculture, livestock, tourism, forestry and fisheries) are climate-sensitive. This problem is also coupled with the country's low adaptive capacity to climate change. Electricity demand in the country is increasing rapidly due to the accelerated productive investment and increasing population. The *Updated Least Cost Power Development Plan (ULCPDP) 2011 – 2031*, envisions that Kenya's electricity peak demand will increase from the present 1.3GW to 15 GW by the year 2030.

Poor investments in electricity sector have widened the gap between electricity demand and supply. The effective installed capacity in the year 2011 was only 1,411 MW. The electricity access is one of the lowest in the world at 15.3% of the total population and 3.8% of the rural population. The addition of generation capacity is urgently required in Kenya to meet its rapidly growing electricity demands.

The present electricity generation is dominated by hydro, geothermal and medium speed diesel (MSD) sources, together making up 99% of electricity sent to the national grid (fig. 1). However, during low hydrology, the reserve margin diminishes, which necessitates load shedding and procurement of expensive emergency power. Therefore, the major challenge for Kenya is to meet its electricity demands through alternative cleaner sources in order to provide stable electricity throughout the year.

¹⁴ Project information data throughout these TOR are to be verified during the inception phase.

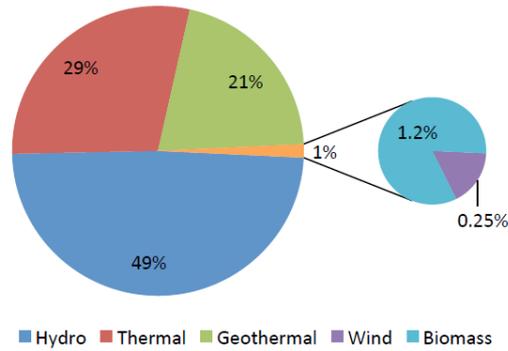


Figure 1: Electricity generation by source in the year 2010/2011

In Kenya, agro industrial wastes are mostly underutilized and in most cases disposed by burning, dumping or (unplanned) land filling. Dumping and unplanned landfilling result in methane generation and release to the atmosphere. Methane is 21 times stronger greenhouse gas than carbon dioxide. Hence, the avoidance of its release to the atmosphere/utilization of it holds great environmental benefit in terms of combating global warming. It has been estimated that Industrial-scale power/cogeneration using biogas produced from agricultural residues could abate 1.6 million t CO_{2e} a year in 2030.

This disposal of waste incurs cost and causes logistical difficulty. However, these organic wastes represent a potential bio resource for production of energy and bio-fertilizers. Waste to Energy (WTE)-based biogas plants holds greater promise for Kenya in its electricity supply through alternative cleaner sources. A study conducted by German International Cooperation in 2010 on the biogas power generation potential from agro-wastes, concluded the following average values: Sisal waste – 20 MWe, Coffee waste – 10 MWe, sugar plant waste – 4.1 MWe, pineapple processing waste – 2.4 MWe and chicken waste – 1.9 MWe. The study was based on the available data from few selected industries. However, the actual country-wide potential is expected to exceed this limit.

Limited developments have taken place in Kenya in the field of commercial biogas plants sector. The sector is faced with several barriers which need to be mitigated, such as: a) there were no successful commercial scale demonstration projects to interest and convince investors and other stakeholders, b) inadequate local knowledge, technology, technical capacity and skill for sustainable implementation, operation and maintenance of WTE-based energy generation systems, c) lack of technical standards for biogas plants, d) lack of qualified feasibility studies/project designs and data for assessing the project potential in the area of WTE that would interest investors and policy makers, e) inadequate financing/private sector investment in WTE, f) improper planning in providing financial incentives and lack of funding/financing facility, g) inadequate realization and utilization of initiatives and policies of

Government Ministries, h) reluctance of financial institutions to finance WTE investments and low public awareness on the potential of WTE.

The intervention under the GEF project titled “Sustainable conversion of waste into clean energy

to reduce GHG emissions” is considered timely and appropriate to address the mentioned barriers and create an enabling environment for encouraging investment in WTE projects in Kenya.

Project implementation started in November 2015 and the initial project end date was in November 2019. Actual implementation end date is October 2022.

The project document foresees regular monitoring, an independent mid-term review (MTR) evaluation and a terminal evaluation (TE). An independent mid-term monitoring and evaluation was carried out in December 2020 – February 2021.

3. Project objective

The key objective of the project is to promote investments in WTE technologies to increase electrification rate as well as to reduce greenhouse gases (GHG) emissions in Kenya.

The following **project components** have been developed, in addition to project management, to achieve the project objectives:

Project Component 1: Capacity development and knowledge management

Under this project component, information and best practices platform for WTE technologies will be established at a University/institution. This platform will also have all the database and information required for developing WTE projects. The proposed information and best practices platform will be attached to a university or research institution for reducing infrastructure development cost and operating cost as well as to ensure its sustainability. Experience sharing sessions would also take place involving engineers/project managers who have prior experience in developing similar WTE projects.

Project Component 2: Establishment of pilot WTE power plants in Agro-industries

This project would work with Kenya Bureau of Standards (KEBS) and Energy Regulatory Commission to amend the domestic standards to bring industrial biogas plants under the regulations and in the enforcement of these standards at industrial biogas plants. Such standards would be prepared as a priority before the actual construction of the demonstration project starts with necessary technical inputs from Ministry of Energy.

Project Component 3: Creation of financing incentive arrangement

The level of investments in WTE projects in Kenya is very low. One major reason for this is the lack of conducive environment for investments. Hence to mitigate this barrier, a specific financial incentive scheme for promoting investments in WTE technologies will be created. Under the project, incentives would be provided based on installed capacity for WTE energy projects as follows:

For smaller plants, up to 200 kW_e or 600 kW_{th}: USD 75,000 grant. For medium to large plants, greater than 200 kW_e or 600 kW_{th}: USD 50,000 grant. As the capacity increases, the viability of the plants increases due to economy of scale. Hence, the capital subsidy is reduced accordingly. Initial target is to provide incentives to small plants for a cumulative 3 MW_e and 1 MW_{th} and medium to large plants for a cumulative 4 MW_e and 2 MW_{th}.

Project Component 4: Monitoring and Evaluation

The project's MTR was conducted from December 2020 – February 2021. An independent final evaluation will be conducted three months prior the end of the project implementation. The final evaluation will look at the impact and sustainability of results, including the contribution to capacity development, effectiveness of incentive systems and the achievement of global environmental benefit goals.

The following are, in brief, some of the expected results of the project/programme:

- best practices platform for WTE technologies created to provide continuous technical support on design and development of commercial WTE plants;
- financial incentive system is established for attracting investments in WTE technology;
- technical standards for medium and large scale biogas technology will be established which would increase the quality and life of the WTE plant construction;
- avoidance of approximately 87,560 tCO_{2e} emissions directly throughout 20 years lifetime of established WTE plants;
- induction of market transformation in which many would initiate and develop WTE projects of at least 5 MW_e and around 1 MW_{th} plants within a time span of maximum 10 years after the project.

4. Project implementation arrangements

The UNIDO's Programme Management Unit is responsible for the overall operational management and implementation and monitoring of the project. It is led by the Project Manager responsible for overall coordination, budgeting, contracting and results measurement issues as well as sustainability of the project. The Project Steering Committee (PSC) oversees the direction of the project and provides necessary guidance and support to achieve the results of the project.

The project will involve Ministry of Environment and Mineral Resources (MEMR) - GEF focal point, Ministry of Livestock, Ministry of Finance (MoF), Ministry of Energy (MoE), other institutions like Energy Regulatory Commission, Kenya Industrial Research and Development Institute (KIRDI), KEBS, banks/financial institutions, private investors, etc. MEMR, along with MoF, MoE and a Cooperative Bank of Kenya will be responsible for the financial incentive. Also, MoF is the deciding authority in clearing projects, which are donor funded.

The demonstration projects will utilize the recently revised Purchase Power Agreement (PPA) templates, results of the WTE projects will be fed in to future revisions and improvements of both Feed in Tariffs and PPAs by MoE. Also the demonstration projects will also closely work with MoE utilities, like Kenya Power, for grid electricity export. KEBS along with MoE will be responsible for the design and enforcement of technical standards for medium and large scale biogas technology.

5. Main findings on project progress

The MTR evaluation report dated February 2021 outlines that the project has made good progress towards the delivery of all key outputs and tangible results can already be observed. Almost all activities were completed at the time of MTR evaluation except two; the information and best practices platform for WTE technologies is in the final stages of being established at KIRDI, with only the launching event remaining while the activity on development of industrial biogas standards presently only requires multi-stakeholder review of the draft report and convening of a workshop to come up with a final report. These two pending activities have slowed down due to the prevalence of COVID 19 pandemic since they require in-person engagement.

In terms of the relevance and utility of the projects, the majority of the projects have been well implemented in so far as the results match the expected objectives. Further details can be obtained from the MTR evaluation report.

6. Budget information

Table 1. Financing plan summary

Description	Project Preparation (in USD)	Project (in USD)	Total (in USD)
Financing (GEF / others)	100,000	1,999,998	2,099,998
Co-financing ¹⁵ (in cash and/or in-kind)		9,824,718	9,824,718
Total (\$)	100,000	11,824,716	11,924,716

Source: Project document/GEF: CEO endorsement document

Table 2. Financing plan summary – project component breakdown

Project outcomes	GEF grant amount (excl. PPG Donor(s)) (in USD)	Co-financing (in USD)	Total (in USD)
1. Capacity development and knowledgemanagement	190,000	335,300	525,300
2. Establishment of pilot agro-industrial WTEplants	765,180	6,818,468	7,583,648
3. Scaling up investment inWTE plants	783,200	350,000	1,133,200
Project Management	181,818	478,000	659,818
Monitoring andEvaluation and knowledge management	80,000	100,000	180,000
Total (in USD)	1,999,998	9,824,718	11,824,716

Source: Project document/GEF: CEO endorsement document

Table 3. Co-financing source breakdown

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount (USD)
National Government	Ministry of Industrialization and Enterprise Development	In-kind	320,000

¹⁵ Co-financing types are grant, soft loan, hard loan, guarantee, in kind, or cash.

National Government	Ministry of Energy	In-kind	300,000
National Government	Migory County	In-kind	1,200,000
National Government	Migory County	Cash	800,000
National Government	Kenya Meat Commission	In-kind	820,000
Private Sector	Green Energy Africa	In-kind	156,250
Private Sector	Strathmore University	In-kind	150,000
Private Sector	Biogas Power Holding	Cash	105,708
Private Sector	Biogas Power Holding	In-kind	82,981
Private Sector	Keekonyokie Butchers Company Limited	Investment	395,000
Private Sector	Dagoretti Environment Management Association (DEMA)	In-kind	476,470
Private Sector	Sosian Energy Limited	Cash	3,500,000
Private Sector	Agro-Chemicals and Food Company Limited	Cash	211,417
Private Sector	Agro-Chemicals and Food Company Limited	In-kind	52,854
Private Sector	Farmer's Choice Ltd	Cash	10,000
Private Sector	Farmer's Choice Ltd	In-kind	552,000
Private Sector	Olivado	Cash	497,790
Private Sector	Olivado	In-kind	44,248
GEF Agency	UNIDO	Grant	60,000
GEF Agency	UNIDO	In-kind	90,000
Total Co-financing			9,824,718

Source: Project document/GEF: CEO endorsement document

Table 4. UNIDO budget execution¹⁶ (Grant No.: 2000003217)

Items of expenditure	2016	2017	2018	2019	2020	2021	2022	Total	%/Total
Staff & Intern Consultants	100,048.40	26,717.62	109.16	5,301.70	9,804.07	23,353.32	0.00	165,334.27	9%
Local travel	26,959.30	15,324.74	4,103.11	12,383.61	0.00	13,673.24	3,882.88	76,326.88	4%
Nat.Consult./Staff	56,419.20	84,745.37	82,467.78	73,492.33	102,873.93	93,758.74	79,637.79	573,395.14	31%
Contractual Services	2,523.56	505,681.86	191,069.88	46,807.33	118,697.27	(29,867.75)	51,107.49	886,019.64	47%
Train/Fellowship/Study	0.00	476.56	0.00	7,169.68	0.00	58,881.16	32.11	66,559.51	4%
International Meetings	29,879.28	9,018.87	3,685.34	2,653.19	6.95	(98.54)	0.00	45,145.09	2%
Premises	0.00	208.38	0.00	0.00	0.00	0.00	0.00	208.38	0%
Equipment	12,435.50	0.00	1,478.76	11,479.57	262.62	(12,249.22)	52.85	13,460.08	1%
Other Direct Costs	12,540.88	5,120.47	4,728.95	6,534.47	5,636.29	8,097.71	1,898.54	44,557.31	2%
Total	240,806.12	647,293.87	287,642.98	165,821.88	237,281.13	155,548.66	136,611.66	1,871,006.30	100%

Source: UNIDO SAP as of May 2022. All figures are in USD

¹⁶ Disbursement: Expenditure, incl. commitment

Scope and purpose of the evaluation

The terminal evaluation (TE) will cover the whole duration of the project from its starting date up to the date of the evaluation. It will assess project performance against the evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact.

The TE has an additional purpose of drawing lessons and developing recommendations for UNIDO, the Government, Donors, and the project stakeholders and partners that may help improving the selection, enhancing the design and implementation of similar future projects and activities in the country and on a global scale upon project completion. The TE report should include examples of good practices for other projects in the focal area, country, or region.

The TE should provide an analysis of the attainment of the project objective and the corresponding outputs and outcomes. Through its assessments, the Evaluation Team (ET) should enable the Government, counterparts, UNIDO and other stakeholders and donors to verify prospects for development impact and sustainability, providing an analysis of the attainment of global environmental objectives, project objectives, delivery and completion of project outputs/activities, and outcomes/impacts based on indicators. The assessment shall include reexamination of the relevance of the objectives and other elements of project design according to the project evaluation parameters defined in chapter III below.

The overall purpose of the TE is to assess whether the project has achieved or is likely to achieve its main objective (i.e. to promote investments in WTE technologies to increase electrification rate as well as to reduce greenhouse gases emissions in Kenya) and to what extent the project has also considered sustainability and scaling-up factors for increasing contribution to sustainable results and further impact.

The evaluation has three specific objectives:

- (i) Assess the project performance in terms of relevance, effectiveness, efficiency, sustainability and progress to impact;
- (ii) Identify key learning to feed into the design and implementation of the forthcoming projects; and
- (iii) Develop a series of findings, lessons and recommendations for enhancing the design of new and implementation of ongoing projects by UNIDO.

Evaluation approach and methodology

The TE will be conducted in accordance with the UNIDO Evaluation Policy¹⁷ UNEG Norms and Standards for evaluation and the UNIDO Guidelines for the Technical Cooperation Project and Project Cycle¹⁸.

In addition, the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations, the GEF Monitoring and Evaluation Policy and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies must to be considered.

The evaluation will be carried out as an independent in-depth evaluation using a participatory approach whereby all key parties associated with the project will be informed and consulted throughout the evaluation. The evaluation team leader will liaise with the UNIDO Independent Evaluation Division on the conduct of the evaluation and methodological issues.

In line with its objectives, the evaluation will have two main components. The first component focuses on an overall **assessment of performance** of the project, whereas the second one focuses on the **learning** from the successful and unsuccessful practices in project design and implementation.

The evaluation will use a theory of change approach and mixed methods to collect data and information from a range of sources and informants. It will pay attention to triangulating the data and information collected before forming its assessment. This is essential to ensure an evidence-based and credible evaluation, with robust analytical underpinning.

The theory of change will identify causal and transformational pathways from the project outputs to outcomes and longer-term impacts, and drivers as well as barriers to achieve them. The learning from this analysis will be useful to feed into the design of the future projects so that the management team can effectively manage them based on results.

In those cases where baseline information for relevant indicators is not available, the evaluation team will aim at establishing a proxy-baseline through recall and secondary information.

Data collection methods

The ET will be required to use different methods to ensure that data gathering and analysis deliver evidence-based qualitative and quantitative information, based on

¹⁷ UNIDO. (2018). Director General's Bulletin: Evaluation Policy (DGB/2018/08, dated 1 June 2018)

¹⁸ UNIDO. (2006). Director-General's Administrative Instruction No. 17/Rev.1: Guidelines for the Technical Cooperation Programme and Project Cycle (DGA1.17/Rev.1, 24 August 2006)

diverse sources, as necessary: desk studies and literature review, statistical analysis, individual interviews, focus group meetings/discussions, surveys and direct observation. This approach will not only enable the evaluation to assess causality through quantitative means but also to provide reasons for why certain results were achieved or not and to triangulate information for higher reliability of findings. The specific mixed methodological approach will be described in the inception report.

Following are the main instruments for data collection:

- (a) **Desk and literature review** of documents related to the project, including but not limited to:
 - The original project document, monitoring reports (such as progress and financial reports), mid-term review report, output reports, back-to-office mission report(s), end-of-contract report(s) and relevant correspondence
 - Notes from meetings of committees involved in the project
- (b) **Stakeholder consultations** will be conducted through structured and semi-structured interviews and focus group discussion. Key stakeholders to be interviewed include:
 - UNIDO Management and staff involved in the project; and
 - Representatives of donors (for GEF projects, it should include the national GEF focal point) and counterparts
- (c) **Field visit** to Kenya
 - On-site observation of results achieved by the project, including interviews of actual and potential beneficiaries of improved technologies
 - Interviews with the relevant UNIDO Country Office(s) representative to the extent that he/she was involved in the project, and the project's management members and the various national [and sub-regional] authorities dealing with project activities as necessary
- (d) Other interviews, surveys or document reviews as deemed necessary by the evaluation team and/or by the Independent Evaluation Division for triangulation purposes

Evaluation key questions and criteria

The evaluation team will develop interview guidelines. Field interviews can take place either in the form of focus-group discussions or one-to-one consultations.

The key evaluation questions are the following:

- (a) What are the key drivers and barriers to achieve the long term objectives? To what extent has the project helped put in place the conditions likely to address the drivers, overcome barriers and contribute to the long term objectives?
- (b) How well has the project performed? Has the project done the right things? Has the project done things right, with good value for money?
- (c) What have been the project's key results (outputs, outcome and impact)? To what extent have the expected results been achieved or are likely to be achieved? To what extent the achieved results will sustain after the completion of the project?
- (d) What lessons can be drawn from the successful and unsuccessful practices in designing, implementing and managing the project?

The evaluation will assess the likelihood of sustainability of the project results after the project completion. The assessment will identify key risks (e.g. in terms of financial, socio-political, institutional and environmental risks) and explain how these risks may affect the continuation of results after the project ends. Table 5 below provides the key evaluation criteria to be assessed by the evaluation. The detailed questions to assess each evaluation criterion are in annex 2. The **rating criteria** and table to be used is presented in annex 8.

Table 5. Summary of Project evaluation criteria

Index	Evaluation criteria	Mandatory rating
A	Progress to Impact	Yes
B	Project design	Yes
1	• Overall design	Yes
2	• Logframe	Yes
C	Project performance	Yes
1	• Relevance	Yes
2	• Effectiveness	Yes
3	• Efficiency	Yes
4	• Sustainability of benefits	Yes
D	Cross-cutting performance criteria	
1	• Gender mainstreaming	Yes
2	• Environment and socio-economic aspects ¹⁹	
2	• M&E: (focus on Monitoring) ✓ M&E design ✓ M&E implementation	Yes
3	• Results-based Management (RBM)	Yes
E	Performance of partners	
1	• UNIDO	Yes
2	• National counterparts	Yes
3	• Donor	Yes
F	Overall assessment	Yes

¹⁹ All GEF-4 and GEF-5 projects have incorporated relevant environmental and social considerations into the project design / GEF-6 projects have followed the provisions specified in UNIDO/DGAI.23: UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP)

I Evaluation process

The evaluation will be implemented in phases which are not strictly sequential, but in many cases iterative, conducted in parallel and partly overlapping:

- UNIDO Independent Evaluation Division (IED) identifies and selects the Evaluation Team members, in consultation with project manager
- Inception phase
 - ✓ Desk review and data analysis: The evaluation team will review project-related documentation and literature and carry out a data analysis (incl. familiarization with GEF programmes and strategies, and with relevant GEF policies such as those on project cycle, M&E, co-financing, fiduciary standards, gender, and environmental and social safeguards)
 - ✓ Briefing of consultant(s) at UNIDO Headquarters (HQ)
 - ✓ Preparation of inception report: The evaluation team will prepare the inception report providing details on the methodology for the evaluation and include an evaluation matrix with specific issues for the evaluation; the specific site visits will be determined during the inception phase, taking into consideration the findings and recommendations of project progress reports or mid-term reviews.
 - ✓ Interviews, survey
- Field phase
 - ✓ Country field visit(s)
 - ✓ ET Debriefing in the field to project stakeholders
- Reporting phase
 - ✓ After field mission, HQ debriefing with preliminary findings, conclusions and recommendations by the ET leader
 - ✓ Data analysis and draft report writing
 - ✓ Draft report submission
 - ✓ Sharing and factual validation of draft report with stakeholders
 - ✓ Final evaluation report Submission and QA/clearance by IED, and
 - ✓ Two pages summary take-away message
- IED Final report issuance and distribution with the respective management response sheet and further follow-up, and publication of evaluation report in UNIDO intra/internet sites

II Evaluation team composition

A staff from the UNIDO Independent Evaluation Division will be assigned as Evaluation Manager and will coordinate and provide evaluation backstopping to the evaluation team and ensure the quality of the evaluation. The UNIDO Project Manager and national project teams will act as resourced persons and provide support to the evaluation team and the IED evaluation manager.

The evaluation team will be composed of at least one international evaluation consultant acting as the team leader and one national consultant. The evaluation team members will possess relevant strong experience and skills on evaluation and

evaluation management, including social safeguards and gender. Expertise and experience in the related technical subject of the project is desirable. The evaluation consultants will be contracted by UNIDO.

In some specific cases (e.g. complex projects, regional projects, projects at risk), an IED evaluation officer could be also assigned to be part of the evaluation team and hence participate in the whole conduct as such.

The tasks of each team member are specified in the job descriptions in annex 3 to these terms of reference.

According to UNIDO Evaluation Policy, members of the evaluation team must not have been directly involved in the design and/or implementation of the project under evaluation.

The UNIDO GEF Coordinator and GEF OFP(s) will be briefed on the evaluation and provide support to its conduct. GEF OFP(s) will, where applicable and feasible, also be briefed and debriefed at the start and end of the evaluation mission.

III Time schedule

The evaluation is scheduled to take place from August to September 2022.

The evaluation field mission is tentatively planned for August/ September.

The Draft Evaluation report will be submitted 2 to 4 weeks after the end of the mission.

The Final Evaluation report will be submitted 2 weeks after comments received.

IV Evaluation deliverables

Inception report

This Terms of Reference (ToR) provides some information on the evaluation methodology, but this should not be regarded as exhaustive. After reviewing the project

documentation and initial interviews with the project manager, the International Evaluation Consultant will prepare, in collaboration with the national consultant, a short inception report that will operationalize the ToR relating to the evaluation questions and provide information on what type of and how the evidence will be collected (methodology). It will be discussed with and approved by the responsible UNIDO Evaluation Manager.

The Inception Report will focus on the following elements: preliminary project theory model(s); elaboration of evaluation methodology including quantitative and qualitative approaches through an evaluation framework (“evaluation matrix”); division of work between the International Evaluation Consultant and the national consultant; mission plan, including places to be visited, people to be interviewed and possible surveys to be conducted and a debriefing and reporting timetable²⁰.

Evaluation report and review procedures

The draft report will be delivered to UNIDO Independent Evaluation Division (the suggested report outline is in annex 4) and circulated to UNIDO staff and national stakeholders associated with the project for factual validation and comments. Any comments or responses, or feedback on any errors of fact to the draft report provided by the stakeholders will be sent to UNIDO Independent Evaluation Division for collation and onward transmission to the project evaluation team who will be advised of any necessary revisions. On the basis of this feedback, and taking into consideration the comments received, the evaluation team will prepare the final version of the terminal evaluation report.

The ET will present its preliminary findings to the local stakeholders at the end of the field visit and take into account their feed-back in preparing the evaluation report. A presentation of preliminary findings will take place at UNIDO HQ after the field mission.

The TE report should be brief, to the point and easy to understand. It must explain the purpose of the evaluation, exactly what was evaluated, and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should provide information on when the evaluation took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

Findings, conclusions and recommendations should be presented in a complete, logical and balanced manner. The evaluation report shall be written in English and follow the

²⁰ The evaluator will be provided with a Guide on how to prepare an evaluation inception report and a Guide on how to formulate lessons learned (including quality checklist) prepared by the UNIDO Independent Evaluation Division.

outline given in annex 4. The ET should submit the final version of the TE report in accordance with UNIDO Independent Evaluation Division standards.

V Quality assurance

All UNIDO evaluations are subject to quality assessments by UNIDO Independent Evaluation Division. Quality assurance and control is exercised in different ways throughout the evaluation process (briefing of consultants on methodology and process of UNIDO Independent Evaluation Division, providing inputs regarding findings, lessons learned and recommendations from other UNIDO evaluations, review of inception report and evaluation report).

The quality of the evaluation report will be assessed and rated against the criteria set forth in the Checklist on evaluation report quality, attached as annex 5. UNIDO's Independent Evaluation Division should ensure that the evaluation report is useful for UNIDO in terms of organizational learning (recommendations and lessons learned) and is compliant with UNIDO's evaluation policy and these terms of reference. The draft and final evaluation report are reviewed by UNIDO Independent Evaluation Division, which will issue and circulate it within UNIDO together with a management response sheet, as well as submit to relevant stakeholders as required.

Annex 1: Project results framework

Project Objective: To promote investments in waste-to-energy (WTE) technologies to increase electrification and to reduce GHG emissions						
Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount (\$)	Confirmed Cofinancing (\$)
1. Capacity development and knowledge management	TA	1.1. Improved awareness, knowledge sharing on best practices and capacity building on WTE in the country	<p>1.1.1. Information and the best practices platform (IBPP) for WTE technologies established at Kenya Industrial Research & Development Institute (KIRDI)</p> <p>1.1.2. Development of human capacities in WTE for policy makers (at least 50 policy makers), project developers, agro-industries, and other stakeholders (at least 50 persons)</p> <p>1.1.3. Development and strengthening of institutional capacities in the area of WTE among technical institutions and financial institutions (at least 50 persons from each)</p>	GEF TF	190,000	335,300

			group)			
2. Establishment of pilot agro- industrial WTE plants	TA	2.1. Increased use of biogas for energy generation	2.1.1. Establishment of standards for medium and large scale biogas plants	GEF TF	34,000	60,000
			2.1.2. Detailed plant design prepared for WTE demonstration plants	GEF TF	56,000	192,000
	INV		2.1.3. WTE plants established for a cumulative capacity of around 1,856 kW _e and 1,397kW _{th}	GEF TF	675,180	6,566,468
3. Scaling up investment in WTE plants	TA	3.1. Increased involvement of private investors in WTE projects	3.1.1. Establishment and implementation of incentive systems for WTE technologies	GEF TF	83,000	50,000
	INV					700,000
4. Monitoring and Evaluation (M&E) and knowledge management	TA	4.1. Effectiveness of the outputs assessed, corrective actions taken and experience documented	4.1.1. Terminal evaluation project report 4.1.2. Lessons learning and information dissemination workshops Publications and websites	GEF TF	80,000	100,000
Subtotal					1,818,180	9,346,718

Project Management Cost (PMC) GEF TF	GEF TF	181,818	478,000
Total project costs		1,999,998	9,824,718

Annex 2: Detailed questions to assess evaluation criteria

The evaluation team will assess the project performance guided by the questions below.

No.	Evaluation criteria
A	Progress to impact
1	<ul style="list-style-type: none"> ✓ <u>Likelihood</u> to contribute to the expected impact ✓ Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended, including redirecting trajectories of transformational process and the extent to which conditions for trajectory change are being put into place. ✓ <u>Replication</u>: To what extent the project's specific results (e.g. methodology, technology, lessons, etc.) are reproduced or adopted ✓ <u>Mainstreaming</u>: To what extent information, lessons or specific results of the project are incorporated into broader stakeholder mandates and initiatives such as laws, policies, regulations and project? ✓ <u>Scaling-up</u>: To what extent the project's initiatives and results are implemented at larger geographical scale? ✓ What difference has the project made to the beneficiaries? ✓ What is the change attributable to the project? To what extent? ✓ What are the social, economic, environmental and other effects, either short-, medium- or long-term, on a micro- or macro-level? ✓ What effects are intended or unintended, positive or negative? <p>[The three UNIDO impact dimensions are:</p> <ul style="list-style-type: none"> ✓ <u>Safeguarding environment</u>: To what extent the project contributes to changes in the status of environment. ✓ <u>Economic performance</u>: To what extent the project contributes to changes in the economic performance (e.g. finances, income, costs saving, expenditure) of individuals, groups and entities? ✓ <u>Social inclusiveness</u>: To what extent the project contributes to changes in capacity and capability of individuals, groups and entities in society, such as employment, education, and training?]
B	Project design

No.	Evaluation criteria
1	<ul style="list-style-type: none"> • <u>Overall design</u>²¹ ✓ The project design was adequate to address the problems at hand? ✓ Is the project consistent with the Country's priorities, in the work plan of the lead national counterpart? Does it meet the needs of the target group? Is it consistent with UNIDO's Inclusive and Sustainable Industrial Development? Does it adequately reflect lessons learnt from past projects? Is it in line with the donor's priorities and policies? ✓ Is the applied project approach sound and appropriate? Is the design technically feasible and based on best practices? Does UNIDO have in-house technical expertise and experience for this type of intervention? ✓ To what extent the project design (in terms of funding, institutional arrangement, implementation arrangements...) as foreseen in the project document still valid and relevant? ✓ Does the project document include a M&E plan? Does the M&E plan specify what, who and how frequent monitoring, review, evaluations and data collection will take place? Does it allocate budget for each exercise? Is the M&E budget adequately allocated and consistent with the logframe (especially indicators and sources of verification)? ✓ Were there any changes in project design and/or expected results after start of implementation. ✓ Did the project establish a baseline (initial conditions)? Was the evaluation able to estimate the baseline conditions so that results can be determined? ✓ Risk management: Are critical risks related to financial, social-political, institutional, environmental and implementation aspects identified with specific risk ratings? Are their mitigation measures identified? Where possible, are the mitigation measures included in project activities/outputs and monitored under the M&E plan?
2	<ul style="list-style-type: none"> • <u>Logframe</u> ✓ Expected results: Is the expected result-chain (impact, outcomes and outputs) clear and logical? Does impact describe a desired long-term benefit to a society or community (not as a mean or process), do outcomes describe change in target group's behaviour/performance or system/institutional performance, do outputs describe deliverables that project will produce to achieve outcomes? Are the expected results realistic, measurable and not a reformulation or summary of lower level results? Do outputs plus assumptions lead to outcomes, do outcomes plus assumptions lead to impact? Can all outputs be delivered by the project, are outcomes outside UNIDO's control but within its influence? ✓ Indicators: Do indicators describe and specify expected results (impact, outcomes and outputs) in terms of quantity, quality and time? Do indicators change at each level of results and independent from indicators at higher and lower levels? Do indicators not restate expected results and not cause them? Are indicators necessary and sufficient and do they provide enough triangulation (cross-checking)? Are they indicators sex-disaggregated, if applicable? ✓ Sources of verification: Are the sources of verification/data able to verify status of indicators, are they cost-effective and reliable? Are the sources of verification/data able to verify status of output and outcome indicators before project completion?

²¹ All GEF-4 and GEF-5 projects have incorporated relevant environmental and social considerations into the project design / GEF-6 projects have followed the provisions specified in UNIDO/DGAI.23: UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP); is it in line with GEF Minimum Fiduciary Standards: Separation of Implementation and Execution Functions in GEF Partner Agencies? (GEF/C.41/06/Rev.01)).

No.	Evaluation criteria
C	Project performance
1	<ul style="list-style-type: none"> • <u>Relevance</u> ✓ How does the project fulfil the urgent target group needs? ✓ To what extent is the project aligned with the development priorities of the country (national poverty reduction strategy, sector development strategy)? ✓ How does project reflect donor policies and priorities? ✓ Is the project a technically adequate solution to the development problem? Does it eliminate the cause of the problem? ✓ To what extent does the project correspond to UNIDO's comparative advantages? ✓ Are the original project objectives (expected results) still valid and pertinent to the target groups? If not, have they been revised? Are the revised objectives still valid in today's context?
2	<ul style="list-style-type: none"> • <u>Effectiveness</u> ✓ What are the main results (mainly outputs and outcomes) of the project? What have been the quantifiable results of the project? ✓ To what extent did the project achieve their objectives (outputs and outcomes), against the original/revised target(s)? ✓ What are the reasons for the achievement/non-achievement of the project objectives? ✓ What is the quality of the results? How do the stakeholders perceive them? What is the feedback of the beneficiaries and the stakeholders on the project effectiveness? ✓ To what extent is the identified progress result of the project rather than external factors? ✓ What can be done to make the project more effective? ✓ Were the right target groups reached?
3	<ul style="list-style-type: none"> • <u>Efficiency</u> ✓ How economically are the project resources/inputs (concerning funding, expertise, time...) being used to produce results? ✓ To what extent were expected results achieved within the original budget? If no, please explain why. ✓ Are the results being achieved at an acceptable cost? Would alternative approaches accomplish the same results at less cost? ✓ What measures have been taken during planning and implementation to ensure that resources are efficiently used? Were the project expenditures in line with budgets? ✓ To what extent did the expected co-financing materialize, in cash or in-kind, grants or loan? Was co-financing administered by the project management or by some other organization? Did short fall in co-financing or materialization of greater than expected co-financing affected project results? ✓ Could more have been achieved with the same input? ✓ Could the same have been achieved with less input? ✓ How timely was the project in producing outputs and outcomes? Comment on the delay or acceleration of the project's implementation period. ✓ To what extent were the project's activities in line with the schedule of activities as defined by the Project Team and annual Work Plans? ✓ Have the inputs from the donor, UNIDO and Government/counterpart been provided as planned, and were they adequate to meet the requirements?

No.	Evaluation criteria
4	<ul style="list-style-type: none"> • <u>Sustainability of benefits</u> ✓ Will the project results and benefits be sustained after the end of donor funding? ✓ Does the project have an exit strategy? <p><i>Financial risks:</i></p> <ul style="list-style-type: none"> ✓ What is the likelihood of financial and economic resources not being available once the project ends? <p><i>Socio-political risks:</i></p> <ul style="list-style-type: none"> ✓ Are there any social or political risks that may jeopardize the sustainability of project outcomes? ✓ What is the risk 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? <p><i>Institutional framework and governance risks:</i></p> <ul style="list-style-type: none"> ✓ 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? <p><i>Environmental risks:</i></p> <ul style="list-style-type: none"> ✓ Are there any environmental risks that may jeopardize the sustainability of project outcomes? ✓ Are there any project outputs or higher level results that are likely to have adverse environmental impacts, which, in turn, might affect the sustainability of project benefits?
5	<ul style="list-style-type: none"> • <u>Monitoring of long-term changes</u> <p>The M&E of long-term changes is often incorporated in GEF-supported projects as a separate component and may include determination of environmental baselines; specification of indicators; and provisioning of equipment and capacity building for data gathering, analysis, and use. This section of the evaluation report will describe project actions and accomplishments towards establishing a long-term monitoring system. The evaluation will address the following questions:</p> <ul style="list-style-type: none"> ✓ Did the project contribute to the establishment of a long-term monitoring system? If it did not, should the project have included such a component? ✓ What were the accomplishments and shortcomings in establishment of this system? ✓ Is the system sustainable — that is, is it embedded in a proper institutional structure and does it have financing? How likely is it that this system continues operating upon project completion? ✓ Is the information generated by this system being used as originally intended?
D	Cross-cutting performance criteria
1	<ul style="list-style-type: none"> • <u>Gender mainstreaming</u> ✓ Did the project design adequately consider the gender dimensions in its interventions? Was the gender marker assigned correctly at entry?

No.	Evaluation criteria
	<ul style="list-style-type: none"> ✓ Was a gender analysis included in a baseline study or needs assessment (if any)? Were there gender-related project indicators? ✓ Are women/gender-focused groups, associations or gender units in partner organizations consulted/ included in the project? ✓ How gender-balanced was the composition of the project management team, the Steering Committee, experts and consultants and the beneficiaries? ✓ Do the results affect women and men differently? If so, why and how? How are the results likely to affect gender relations (e.g., division of labour, decision-making authority)? ✓ To what extent were socioeconomic benefits delivered by the project at the national and local levels, including consideration of gender dimensions?
2	<ul style="list-style-type: none"> ✓ Environment and socio-economic aspects²²
3	<ul style="list-style-type: none"> • <i>M&E: (focus on Monitoring)</i> ✓ <i>M&E design</i> <ul style="list-style-type: none"> ○ Was the Monitoring plan at the point of project approval practical and sufficient? ○ Did it include baseline data and specify clear targets and appropriate indicators to track environmental, gender, and socio economic results? ○ Did it include a proper M&E methodological approach; specify practical organization and logistics of the M&E activities including schedule and responsibilities for data collection; ○ Did it include budget adequate funds for M&E activities? ✓ <i>M&E implementation</i> <ul style="list-style-type: none"> ○ How was the information from M&E system used during the project implementation? Was an M&E system in place and did it facilitate timely tracking of progress toward project results by collecting information on selected indicators continually throughout the project implementation period? Did project team and manager make decisions and corrective actions based on analysis from M&E system and based on results achieved? ○ Are annual/progress project reports complete and accurate? ○ Was the information provided by the M&E system used to improve performance and adapt to changing needs? Was information on project performance and results achievement being presented to the Project Steering Committee to make decisions and corrective actions? Do the Project team and managers and PSC regularly ask for performance and results information? ○ Are monitoring and self-evaluation carried out effectively, based on indicators for outputs, outcomes and impact in the logframe? Do performance monitoring and reviews take place regularly? ○ Were resources for M&E sufficient? ○ How has the logframe been used for Monitoring and Evaluation purposes (developing M&E plan, setting M&E system, determining baseline and targets, annual implementation review by the Project Steering Committee...) to monitor progress towards expected outputs and outcomes?

²² All GEF-4 and GEF-5 projects have incorporated relevant environmental and social considerations into the project design / GEF-6 projects have followed the provisions specified in UNIDO/DGAI.23: UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP)

No.	Evaluation criteria
	<ul style="list-style-type: none"> ○ How well have risks outlined in the project document and in the logframe been monitored and managed? How often have risks been reviewed and updated? Has a risk management mechanism been put in place?
4	<ul style="list-style-type: none"> ● Project management ✓ Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement. ✓ Review whether the national management and overall coordination mechanisms have been efficient and effective? Did each partner have assigned roles and responsibilities from the beginning? Did each partner fulfil its role and responsibilities (e.g. providing strategic support, monitoring and reviewing performance, allocating funds, providing technical support, following up agreed/corrective actions)? ✓ The UNIDO HQ-based management, coordination, monitoring, quality control and technical inputs have been efficient, timely and effective (e.g. problems identified timely and accurately; quality support provided timely and effectively; right staffing levels, continuity, skill mix and frequency of field visits)? ✓ The project implemented outreach and public awareness campaigns. Outreach and public awareness materials produced are in line with the relevant UNIDO and donor advocacy guidelines?"
E	Performance of partners
1	<ul style="list-style-type: none"> ● <u>UNIDO</u> ✓ Design <ul style="list-style-type: none"> ○ Mobilization of adequate technical expertise for project design ○ Inclusiveness of project design (with national counterparts) ○ Previous evaluative evidence shaping project design ○ Planning for M&E and ensuring sufficient M&E budget ✓ Implementation <ul style="list-style-type: none"> ○ Timely recruitment of project staff ○ Appropriate use of funds, procurement and contracting of goods and services ○ Project modifications following changes in context or after the Mid-Term Review ○ Follow-up to address implementation bottlenecks ○ Role of UNIDO country presence (if applicable) supporting the project ○ Engagement in policy dialogue to ensure up-scaling of innovations ○ Coordination function ○ Exit strategy, planned together with the government
2	<ul style="list-style-type: none"> ● <u>National counterparts</u> ✓ Design <ul style="list-style-type: none"> ○ Responsiveness to UNIDO's invitation for engagement in designing the project

No.	Evaluation criteria
	<ul style="list-style-type: none"> ✓ Implementation ○ Ownership of the project ○ Support to the project, based on actions and policies ○ Counterpart funding ○ Internal government coordination ○ Exit strategy, planned together with UNIDO, or arrangements for continued funding of certain activities ○ Facilitation of the participation of Non-Governmental Organizations(NGOs), civil society and the private sector where appropriate ○ Suitable procurement procedures for timely project implementation ○ Engagement with UNIDO in policy dialogue to promote the up-scaling or replication of innovations
3	<ul style="list-style-type: none"> ✓ Donor ✓ Timely disbursement of project funds ✓ Feedback to progress reports, including Mid-Term Evaluation ✓ Support by the donor's country presence (if applicable) supporting the project for example through engagement in policy dialogue

Annex 3: Job descriptions

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	International evaluation consultant, team leader
Main Duty Station and Location:	Home-based
Missions:	Missions to Vienna, Austria and Nairobi, Kenya
Start of Contract (EOD):	01/08/2022
End of Contract (COB):	13/09/2022
Number of Working Days:	32 working days spread over 2 months

ORGANIZATIONAL CONTEXT

The UNIDO Independent Evaluation Division (ODG/EIO/IED) is responsible for the independent evaluation function of UNIDO. It supports learning, continuous improvement and accountability, and provides factual information about result and practices that feed into the programmatic and strategic decision-making processes. Evaluation is an assessment, as systematic and impartial as possible, of a programme, a project or a theme. Independent evaluations provide evidence-based information that is credible, reliable and useful, enabling the timely incorporation of findings, recommendations and lessons learned into the decision-making processes at organization-wide, programme and project level. ODG/EIO/IED is guided by the UNIDO Evaluation Policy, which is aligned to the norms and standards for evaluation in the UN system.

PROJECT CONTEXT

Detailed background information of the project can be found the terms of reference (TOR) for the terminal evaluation.

The international evaluation consultant/team leader will evaluate the project in accordance with the evaluation-related terms of reference (TOR). He/she will perform, inter alia, the following main tasks:

MAIN DUTIES	Concrete/ Measurable Outputs to be achieved	Working Days	Location
<p>1. Undertake a desk review of project documentation (incl. familiarization with the GEF programmes and strategies, and with relevant GEF policies such as those on project cycle, M&E, co-financing, fiduciary standards, gender, and environmental and social safeguards) and relevant country background information (national policies and strategies, UN strategies and general economic data); determine key data to collect in the field and adjust the key data collection instruments accordingly (if needed);</p> <p>Assess the adequacy of legislative and regulatory framework relevant to the project's activities and analyze other background info.</p>	<ul style="list-style-type: none"> • Division of evaluation tasks with the National Consultant • Adjusted table of evaluation questions, depending on country specific context • Draft list of stakeholders to be interviewed during the evaluation field mission • Brief assessment of the adequacy of the country's legislative and regulatory framework 	6 days	Home-based
<p>2. Prepare an inception report which streamlines the specific questions to address the key issues in the TOR, specific methods that will be used and data to collect in the field visits, detailed evaluation methodology confirmed, draft theory of change, and tentative agenda for field work</p>	<ul style="list-style-type: none"> • Draft theory of change and Evaluation framework to submit to the Project Manager for clearance. 	5 days	Home-based
<p>3. Briefing with the UNIDO Independent Evaluation Division, project manager and other key stakeholders at UNIDO HQ.</p>	<ul style="list-style-type: none"> • Detailed evaluation schedule with tentative mission agenda (incl. list of stakeholders to be interviewed and planned site visits) submitted to evaluation and project manager 	2 days	Through Skype/Zoom
<p>4. Undertake evaluation field mission²³ to consult field project stakeholders, partners and beneficiaries to verify and complete preliminary evaluation findings from desk review and assess</p>	<ul style="list-style-type: none"> • Field mission conducted • Evaluation/debriefing presentation of the evaluation's preliminary findings prepared, draft conclusions, 	6 days	As requested

²³ The exact mission dates will be decided in agreement with the Consultant, UNIDO HQ, and the country counterparts.

MAIN DUTIES	Concrete/ Measurable Outputs to be achieved	Working Days	Location
the institutional capacities of the recipient country	recommendations and lessons learnt to stakeholders in the country, at the end of the mission <ul style="list-style-type: none"> • Agreement with the National Consultant on the structure and content of the evaluation report and the distribution of writing tasks 		
5. Debriefing mission: Present preliminary findings, recommendations and lessons learnt to project stakeholders at UNIDO HQ for factual validation and comments Hold additional meetings with and obtain additional data from evaluation/project manager and other stakeholders as required	<ul style="list-style-type: none"> • Power point presentation • Feedback from stakeholders obtained and discussed • Additional meetings held as required 	2 days	Through Skype/Zoom
6. Prepare the draft evaluation report, with inputs from the National Consultant, and in accordance with the evaluation TOR Submit draft evaluation report to the evaluation manager for feedback and comments	<ul style="list-style-type: none"> • Draft evaluation report submitted to evaluation manager for review and comments 	6 days	Home-based
7. Revise the draft evaluation report based on comments and suggestions received through the evaluation manager and edit the language and finalize the evaluation report according to UNIDO Independent Evaluation Division standards Prepare a two pages summary of a take-away message from the evaluation	Final evaluation report submitted to evaluation manager Two pages summary take-away message from the	5 days	Home-based

MAIN DUTIES	Concrete/ Measurable Outputs to be achieved	Working Days	Location
	evaluation submitted to the evaluation manager		
	TOTAL	32 days	

REQUIRED COMPETENCIES

Core values:

WE LIVE AND ACT WITH INTEGRITY: work honestly, openly and impartially.

WE SHOW PROFESSIONALISM: work hard and competently in a committed and responsible manner.

WE RESPECT DIVERSITY: work together effectively, respectfully and inclusively, regardless of our differences in culture and perspective.

Core competencies:

WE FOCUS ON PEOPLE: cooperate to fully reach our potential –and this is true for our colleagues as well as our clients. Emotional intelligence and receptiveness are vital parts of our UNIDO identity.

WE FOCUS ON RESULTS AND RESPONSIBILITIES: focus on planning, organizing and managing our work effectively and efficiently. We are responsible and accountable for achieving our results and meeting our performance standards. This accountability does not end with our colleagues and supervisors, but we also owe it to those we serve and who have trusted us to contribute to a better, safer and healthier world.

WE COMMUNICATE AND EARN TRUST: communicate effectively with one another and build an environment of trust where we can all excel in our work.

WE THINK OUTSIDE THE BOX AND INNOVATE: To stay relevant, we continuously improve, support innovation, share our knowledge and skills, and learn from one another.

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education:

Advanced degree in environment, energy, engineering, development studies or related areas.

Technical and functional experience:

- Minimum of 10 years' experience in environmental/energy project management and/or evaluation (of development projects)

- Minimum of five years' experience in conducting and managing reviews or evaluations (of development projects), preferably in the field of energy, clean technologies, climate change, and/or entrepreneurship.
- Knowledge about GEF operational programs and strategies and about relevant GEF policies such as those on project life cycle, M&E, incremental costs, and fiduciary standards
- Sound qualitative and quantitative methodological skills incl. data collection, management and analysis skills.
- Knowledge about energy, clean technologies, climate change, and/or entrepreneurship.
- Working experience in developing countries, ideally in countries on the African continent.
- Very good communication, interpretation and writing skills, as well as interpersonal skills.
- Proven leadership capacity.
- Experience in the evaluation of projects related to waste to energy/bioenergy is an asset.
- Experience in the evaluation of GEF projects and knowledge of UNIDO activities is an asset
- Knowledge about multilateral technical cooperation and the UN, international development priorities and frameworks.
- Working experience in developing countries

Languages: Fluency in written and spoken English is required.

Reporting and deliverables

- 1) At the beginning of the assignment the Consultant will submit a concise Inception Report that will outline the general methodology and presents a concept Table of Contents
- 2) The country assignment will have the following deliverables:
 - Presentation of initial findings of the mission to key national stakeholders
 - Draft report
 - Final report, comprising of executive summary, findings regarding design, implementation and results, conclusions and recommendations
- 3) Debriefing at UNIDO HQ:
 - Presentation and discussion of findings
 - Concise summary and comparative analysis of the main results of the evaluation report

All reports and related documents must be in English and presented in electronic format.

Absence of conflict of interest:

According to UNIDO rules, the consultant must not have been involved in the design and/or implementation, supervision and coordination of and/or have benefited from the programme/project (or theme) under evaluation. The consultant will be requested to sign a declaration that none of the above situations exists and that the consultants will not seek assignments with the manager/s in charge of the project before the completion of her/his contract with the UNIDO Independent Evaluation Division.

**TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT
(ISA)**

Title:	National evaluation consultant
Main Duty Station and Location:	Home-based
Mission/s to:	Travel to potential sites within Kenya
Start of Contract:	01/08/2022
End of Contract:	13/09/2022
Number of Working Days:	24 days spread over 2 months

ORGANIZATIONAL CONTEXT

The UNIDO Independent Evaluation Division (ODG/EIO/IED) is responsible for the independent evaluation function of UNIDO. It supports learning, continuous improvement and accountability, and provides factual information about result and practices that feed into the programmatic and strategic decision-making processes. Evaluation is an assessment, as systematic and impartial as possible, of a programme, a project or a theme. Independent evaluations provide evidence-based information that is credible, reliable and useful, enabling the timely incorporation of findings, recommendations and lessons learned into the decision-making processes at organization-wide, programme and project level. The UNIDO Independent Evaluation Division is guided by the UNIDO Evaluation Policy, which is aligned to the norms and standards for evaluation in the UN system.

PROJECT CONTEXT

Detailed background information of the project can be found the terms of reference (TOR) for the terminal evaluation.

As evaluation team member, the national evaluation consultant will evaluate the project according to the terms of reference (TOR) under the leadership of the team leader (international evaluation consultant). S/he will perform, inter alia, the following main tasks:

<u>MAIN DUTIES</u>	Concrete/measurable outputs to be achieved	Expected duration	Location
<p>Desk review</p> <p>1. Desk review</p> <p>Review and analyze project documentation and relevant country background information; in cooperation with the team leader, determine key data to collect in the field and prepare key instruments in English (questionnaires, logic models);</p> <p>If need be, recommend adjustments to the evaluation framework and Theory of Change in order to ensure their understanding in the local context.</p> <p>Analyze and assess the adequacy of legislative and regulatory framework, specifically in the context of the project's objectives and targets</p>	<ul style="list-style-type: none"> • Evaluation questions, questionnaires/interview guide, logic models adjusted to ensure understanding in the national context; • A stakeholder mapping, in coordination with the project team. 	7 days	Home-based
<p>2. Coordinate and conduct the field mission with the team leader in cooperation with the Project Management Unit, where required and if possible.</p> <p>Consult with the Team Leader on the structure and content of the evaluation report and the distribution of writing tasks.</p>	<ul style="list-style-type: none"> • Presentations of the evaluation's initial findings, draft conclusions and recommendations to stakeholders. • Detailed evaluation schedule • List of stakeholders to be interviewed during the field mission 	10 days (including travel days)	In Kenya
<p>3. Prepare inputs and analysis to the evaluation report according to TOR and as agreed with the Team Leader.</p>	<ul style="list-style-type: none"> • Draft evaluation report prepared. 	7 days	Home-based

<u>MAIN DUTIES</u>	Concrete/measurable outputs to be achieved	Expected duration	Location
Revise the draft project evaluation report based on comments from UNIDO and stakeholders and proof read the final version.			
TOTAL		24 days	

REQUIRED COMPETENCIES

Core values:

WE LIVE AND ACT WITH INTEGRITY: work honestly, openly and impartially.

WE SHOW PROFESSIONALISM: work hard and competently in a committed and responsible manner.

WE RESPECT DIVERSITY: work together effectively, respectfully and inclusively, regardless of our differences in culture and perspective.

Core competencies:

WE FOCUS ON PEOPLE: cooperate to fully reach our potential –and this is true for our colleagues as well as our clients. Emotional intelligence and receptiveness are vital parts of our UNIDO identity.

WE FOCUS ON RESULTS AND RESPONSIBILITIES: focus on planning, organizing and managing our work effectively and efficiently. We are responsible and accountable for achieving our results and meeting our performance standards. This accountability does not end with our colleagues and supervisors, but we also owe it to those we serve and who have trusted us to contribute to a better, safer and healthier world.

WE COMMUNICATE AND EARN TRUST: communicate effectively with one another and build an environment of trust where we can all excel in our work.

WE THINK OUTSIDE THE BOX AND INNOVATE: To stay relevant, we continuously improve, support innovation, share our knowledge and skills, and learn from one another.

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in environmental science, engineering or other relevant discipline like developmental studies with a specialization in industrial energy efficiency and/or climate change.

Technical and functional experience:

- Minimum of 10 years' experience in environmental/energy project management and/or evaluation (of development projects)

- Exposure to the needs, conditions and problems in developing countries.
- Familiarity with the institutional context of the project is desirable.
- Experience in the field of environment and energy, including evaluation of development cooperation in developing countries is an asset.
- Experience in the evaluation of GEF projects and knowledge of UNIDO activities an asset.

Languages: Fluency in written and spoken English required.

Absence of conflict of interest:

According to UNIDO rules, the consultant must not have been involved in the design and/or implementation, supervision and coordination of and/or have benefited from the programme/project (or theme) under evaluation. The consultant will be requested to sign a declaration that none of the above situations exists and that the consultants will not seek assignments with the manager/s in charge of the project before the completion of her/his contract with the UNIDO Independent Evaluation Division.

Annex 4: Outline of an in-depth project evaluation report

Acknowledgement (incl. list of evaluation team members)

Abbreviations and acronyms

Glossary of evaluation-related terms

Executive summary

- Must provide a synopsis of the storyline which includes the main evaluation findings and recommendations
- Must present strengths and weaknesses of the project
- Must be self-explanatory and should be maximum 3-4 pages in length

I. Evaluation objectives, methodology and process

- Information on the evaluation: why, when, by whom, etc.
- Scope and objectives of the evaluation, main questions to be addressed
- Information sources and availability of information
- Methodological remarks, limitations encountered and validity of the findings

II. Country and project background

- Brief country context: an overview of the economy, the environment, institutional development, demographic and other data of relevance to the project
- Sector-specific issues of concern to the project²⁴ and important developments during the project implementation period
- Project summary:
 - Fact sheet of the project: including project objectives and structure, donors and counterparts, project timing and duration, project costs and co-financing
 - Brief description including history and previous cooperation
 - Project implementation arrangements and implementation modalities, institutions involved, major changes to project implementation
 - Positioning of the UNIDO project (other initiatives of government, other donors, private sector, etc.)
 - Counterpart organization(s)

III. Project assessment

This is the key chapter of the report and should address all evaluation criteria and questions outlined in the TOR (see section VI Project Evaluation Parameters). Assessment must be based on factual evidence collected and analyzed from different sources. The evaluators' assessment can be broken into the following sections:

²⁴ Explicit and implicit assumptions in the logical framework of the project can provide insights into key-issues of concern (e.g. relevant legislation, enforcement capacities, government initiatives, etc.)

- A. Project design
- B. Implementation performance
 - Ownership and relevance (Report on the relevance of project towards countries and beneficiaries, country ownership, stakeholder involvement)
 - Effectiveness (The extent to which the development intervention's objectives, outcomes and deliverables were achieved, or are expected to be achieved, taking into account their relative importance)
 - Efficiency (Report on the overall cost-benefit of the project and partner countries' contribution to the achievement of project objectives)
 - Likelihood of sustainability of project outcomes (Report on the risks and vulnerability of the project, considering the likely effects of sociopolitical and institutional changes in partner countries, and its impact on continuation of benefits after the project ends, specifically the financial, sociopolitical, institutional framework and governance, and environmental risks)
 - Project coordination and management (Report project management conditions and achievements, and partner countries commitment)
 - Assessment of monitoring and evaluation systems (Report on M&E design, M&E plan implementation, and budgeting and funding for M&E activities)
 - Monitoring of long-term changes
 - Assessment of processes affecting achievement of project results (Report on preparation and readiness / quality at entry, financial planning, UNIDO support, co-financing, delays of project outcomes/outputs, and implementation approach)
- C. Gender mainstreaming

At the end of this chapter, an overall project achievement rating should be developed as required in annex 8. The overall rating table should be presented here.

IV. Conclusions, recommendations and lessons learned

This chapter can be divided into three sections:

A. Conclusions

This section should include a storyline of the main evaluation conclusions related to the project's achievements and shortfalls. It is important to avoid providing a summary based on each and every evaluation criterion. The main conclusions should be cross-referenced to relevant sections of the evaluation report.

B. Recommendations

This section should be succinct and contain few key recommendations. They should:

- be based on evaluation findings
- be realistic and feasible within a project context

- indicate institution(s) responsible for implementation (addressed to a specific officer, group or entity who can act on it) and have a proposed timeline for implementation if possible
- be commensurate with the available capacities of project team and partners
- take resource requirements into account.

Recommendations should be structured by addressees:

- UNIDO
- Government and/or Counterpart Organizations
- Donor

C. Lessons learned

- Lessons learned must be of wider applicability beyond the evaluated project but must be based on findings and conclusions of the evaluation
- For each lesson, the context from which they are derived should be briefly stated

For further guidance on the formulation and expected quality of lessons learned, please consult the guidance document on lessons learned prepared by the UNIDO Independent Evaluation Division (annex 6). The document also includes a checklist on the quality of lessons learned.

Annexes should include the evaluation TOR, list of interviewees, documents reviewed, a summary of project identification and financial data, including an updated table of expenditures to date, and other detailed quantitative information. Dissident views or management responses to the evaluation findings may later be appended in an annex.

Annex 5: Checklist on evaluation report quality

Project title: Sustainable conversion of waste to clean energy for GHG emissions reduction
UNIDO Project ID: 120568

GEF ID: 5154

Evaluation team

Evaluation team leader:

National evaluation consultant:

Evaluation manager (IED):

Quality review done by:

Date:

Report quality criteria	UNIDO Independent Evaluation Division assessment notes	Rating
A. Was the report well-structured and properly written? (Clear language, correct grammar, clear and logical structure)		
B. Was the evaluation objective clearly stated and the methodology appropriately defined?		
C. Did the report present an assessment of relevant outcomes and achievement of project objectives?		
D. Was the report consistent with the ToR and was the evidence complete and convincing?		
E. Did the report present a sound assessment of sustainability of outcomes or did it explain why this is not (yet) possible? (Including assessment of assumptions, risks and impact drivers)		
F. Did the evidence presented support the lessons and recommendations? Are these directly based on findings?		
G. Did the report include the actual project costs (total, per activity, per source)?		
H. Did the report include an assessment of the quality of both the M&E plan at entry and the system used during the implementation? Was the M&E sufficiently budgeted for during preparation and properly funded during implementation?		

Report quality criteria	UNIDO Independent Evaluation Division assessment notes	Rating
I. Quality of the lessons: were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
J. Quality of the recommendations: did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can these be immediately implemented with current resources?		
K. Are the main cross-cutting issues, such as gender, human rights and environment, appropriately covered?		
L. Was the report delivered in a timely manner? (Observance of deadlines)		

Rating system for quality of evaluation reports

A rating scale of 1-6 is used for each criterion: Highly satisfactory = 6, Satisfactory = 5, Moderately satisfactory = 4, Moderately unsatisfactory = 3, Unsatisfactory = 2, Highly unsatisfactory = 1, and unable to assess = 0.

UNIDO evaluation lessons learned

Definition

The Organisation for Economic Cooperation and Development's (OECD) Development Assistance Committee (DAC) (2002) defines lessons learned related to the evaluation of development assistance as follows: "**Generalizations based on evaluation experiences with projects, programs, or policies that abstract from the specific circumstances to broader situations. Frequently, lessons highlight strengths or weaknesses in preparation, design, and implementation that affect performance, outcome, and impact.**"²⁵

Focus
on
generalization

The International Labour Organisation (ILO) provides one of the most comprehensive definitions of lessons learned with relevance for evaluations in the UN system (2014) "**A lesson learned is an observation from project or programme experience which can be translated into relevant, beneficial knowledge by establishing clear causal factors and effects. It focuses on a specific design, activity, process or decision and may provide either positive or negative insights on operational effectiveness and efficiency, impact on the achievement of outcomes, or influence on sustainability. The lesson should indicate, where possible, how it contributes to 1) reducing or eliminating deficiencies; or 2) building successful and sustainable practice and performance**"²⁶.

Focus
on
transferability
&
generalization

UNIDO evaluation lessons learned contain information about the context, challenges, causal factors, target users and success/failure, as also shown in below **Lessons learned quality criteria checklist**.

What is not a lesson learned?

²⁵ <http://www.oecd.org/dataoecd/29/21/2754804.pdf>

²⁶ ILO Evaluation Unit, 2014: Guidance Note 3: Evaluation lessons learned and emerging good practices

**Lessons learned
are not:**

- Simply restating or paraphrasing existing doctrine, policy, process, etc. This does not qualify as an appropriate and bona fide lessons learned²⁷.
- Just applicable to a specific situation but applicable to a generic situation²⁸
- The same as recommendations. Recommendations usually refer to very specific situations including who should take action on what by when

²⁷ www.dtic.mil/ndia/2004cmmi/CMMIT2Tue/LessonsLearnedtc3.pdf

²⁸ www.globalhivmeinfo.org/Pages/Glossary.aspx
www.globalhivmeinfo.org/DigitalLibrary/Digital%20Library/Glossary%20of%20Monitoring%20and%20Evaluation%20Terms.doc

Examples of lessons learned

Source	Well-identified lessons learned in UNIDO evaluations
UNIDO, 2016: Independent UNIDO country evaluation: Thailand	<ul style="list-style-type: none"> A more effective collaboration between the government of Thailand and UNIDO (<i>context; target users</i>) will be more beneficial in developing a “country programme” that identifies the priority areas in which they should work together and then seek funding from potential sources (<i>success</i>) than the choice of the projects being driven by UNIDO on the basis of the financial support the latter is able to mobilize (<i>causal factor; challenge</i>).
UNIDO, 2017: Evaluación final independiente del proyecto: Centro de Automatización Industrial y Meca- trónica (Uruguay)	<ul style="list-style-type: none"> It is important that UNIDO projects get adequate technical in-house support (<i>context</i>). When this capacity is limited to persons that at a later stage get detached from the project the risk emerges (<i>challenge</i>) that UNIDO can’t adequately met the expectations raised (<i>causal factor; failure</i>). UNIDO (<i>target user</i>) risks to loose its reputation as a strategic partner in such situations.
UNIDO, 2016: Independent Terminal Evaluation: Demonstration of BAT/BEP in fossil fuel-fired utilities and industrial boilers in response to the Stockholm Convention on POPs	<ul style="list-style-type: none"> To UNIDO programme managers (<i>target users</i>): The implementation of this regional project involving six countries (<i>context</i>) was very challenging and required more time and better planning to meet deadlines (<i>challenge</i>). One important lesson that emerged is that the design should be kept simple. For the same set of objectives, the design should consider to have smaller number of components meaning less administrative burden and more flexibility (<i>success</i>) resulting in a better and more successful implementation process (<i>causal factor</i>). <i>Lesson learned was amended for this guideline.</i>
UNIDO, 2016: Independent terminal evaluation. Industrial Energy Efficiency in Ecuador	<ul style="list-style-type: none"> To UNIDO country director (<i>target user</i>): Lack of synergies (<i>challenge</i>) between energy efficiency projects and Clean Production activities developed by UNIDO at local level (<i>context</i>) drives to lose opportunities (<i>failure</i>) for a more efficient achievement of shared goals (<i>causal factor</i>). <i>Lesson learned was amended for this guideline.</i>

Examples of statements that do not qualify as lessons learned

Statements identified in UNIDO evaluation reports in the lessons learned sections that are in fact no lessons learned
<ul style="list-style-type: none"> “Focus on product development innovation methods and tools”. <i>The context, challenge, causal factors, success/failure and target users are omitted. This statement resembles more to a recommendation with suboptimal formulation.</i>
<ul style="list-style-type: none"> “UNIDO, as the International executing Agency, was instrumental in: a) introducing new technologies such as the Vallerani System, the use of Zander in tree planting; b) linking

environmental preservation to economic development; c) providing support to the HCEFLCD for upgrading its nursery network”.

The context, challenge, causal factors, success/failure and target users are omitted. This statement is a finding.

- “Include in the peer review process also other agencies, such as UNEP and UNDP, which also support countries in the implementation of Enabling Activities and NIP update projects for the Stockholm Convention”.

The context, challenge, causal factors, success/failure and target users are omitted. This statement resembles more to a recommendation with suboptimal formulation.

Lessons learned quality criteria checklist

The evaluator should cite and explain the points below.

✓ **Context** – Explain the context from which the lesson has been derived (e.g. economic, social, political). If possible, point to any relevance to the broader UNIDO mandates or broader technical or regional activities.

✓ **Challenges** – Cite any difficulties, problems or obstacles encountered / solutions found - Positive and negative aspects should be described.

✓ **Causal factors** – Present evidence for “how” or “why” something did or did not work?

✓ **Target users affected by the lessons learned should be cited** (e.g. Management, programme managers, donors or beneficiaries)

✓ **Success or failure** – The lessons learned should cite any decisions, tasks, or processes that constitute reduced or eliminated deficiencies or built successful and sustainable practice and performance; or have the potential of success. Avoid repetition of failure

✓ **The lesson learned is not mistaken for a recommendation or conclusion**

(Source: ILO Evaluation Unit, 2014: Guidance Note 3: Evaluation lessons learned and emerging good practices, amended with UNIDO IEV)

For assessing the quality of evaluation lessons learned UNIDO uses a 6-point (with one point for each criterion) rating scheme:

Ratings 4-6 are satisfactory and meet quality criteria.

Ratings 1-3 are unsatisfactory and fail to meet quality criteria.

The criterion “The lesson learned is not mistaken for a recommendation or conclusion” **is an exclusion criterion**, i.e. when this criterion is met the lesson learned automatically fails the quality check regardless the quality in other criteria.

Minimum requirement 1: Project design of M&E

All projects will include a concrete and fully budgeted M&E plan by the time of work program entry for full-sized projects (FSP) and CEO approval for medium-sized projects (MSP). This M&E plan will contain as a minimum:

- SMART indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management;
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, indicators identified at the corporate level;
- Baseline for the project, with a description of the problem to be addressed, with indicator data, or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation;
- Identification of reviews and evaluations that will be undertaken, such as mid-term reviews or evaluations of activities; and
- Organizational set-up and budgets for monitoring and evaluation.

Minimum requirement 2: Application of project M&E

Project monitoring and supervision will include implementation of the M&E plan, comprising:

- SMART indicators for implementation are actively used, or if not, a reasonable explanation is provided;
- SMART indicators for results are actively used, or if not, a reasonable explanation is provided;

²⁹ http://www.thegef.org/gef/sites/thegef.org/files/documents/ME_Policy_2010.pdf

- The baseline for the project is fully established and data compiled to review progress reviews, and evaluations are undertaken as planned; and
- The organizational set-up for M&E is operational and budgets are spent as planned.

Annex 8. Rating tables

The following table should be used for rating the different key evaluation criteria:

Evaluation Rating Table

#	Evaluation criteria	Definition	Mandatory rating
A	Progress to impact	Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended, including redirecting trajectories of transformational process and the extent to which conditions for trajectory change are being put into place.	Yes
B	Project design	Formulation of the intervention, the plan to achieve a specific purpose.	Yes
1	Overall design	Assessment of the design in general.	Yes
2	Logframe	Assessment of the logical framework aimed at planning the intervention.	Yes
C	Project performance	Functioning of a development intervention.	Yes
1	Relevance	The extent to which the aid activity is suited to the priorities and policies of the target group, recipient and donor.	Yes
2	Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance.	Yes
3	Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.	Yes
4	Sustainability of benefits	The continuation of benefits from a development intervention after major development assistance has been completed. The probability of continued long-term benefits. The resilience to risk of the net benefit flows over time.	Yes
D	Cross-cutting performance criteria	Other important criteria that cut across the UNIDO intervention.	
1	Gender mainstreaming	The extent to which UNIDO interventions have contributed to better gender equality and gender related dimensions were considered in an intervention.	Yes

2	M&E	Refers to all the indicators, tools and processes used to measure if a development intervention has been implemented according to the plan (monitoring) and is having the desired result (evaluation).	Yes
3	Results-based management (RBM)	Assessment of issues related to results-based work planning, results based M&E and reporting based on results.	Yes
E	Performance of partners	Assessment of partners' roles and responsibilities engaged in the intervention.	Yes
1	UNIDO	Assessment of the contribution of partners to project design, implementation, monitoring and reporting, supervision and backstopping and evaluation. The performance of each partner will be assessed individually, based on its expected role and responsibilities in the project life cycle.	Yes
2	National counterparts		Yes
3	Donor		Yes
F	Overall assessment	Overarching assessment of the project, drawing upon the analysis made under Project performance and Progress to Impact criteria above but not an average of ratings.	Yes

It is acknowledged that some issues covered by one criterion might overlap with others. Yet to enable UNIDO to learn from the deeper evaluation analyses and lessons on a number of areas, separate criteria are included such as those on Monitoring and Evaluation and Results-Based Management. The consistent use of the criteria pertinent to the evaluation object allow for comparability of UNIDO's performance over time. Evaluation questions are formulated around those evaluation criteria in UNIDO, as specified in the following section.

Rating systems and criteria

UNIDO introduced a six-point rating system for the evaluation criteria in 2015, in line with the practice adopted by other development agencies, including the GEF. The aim of the system is to quantify the judgment of evaluators, identify good and poor practices, to facilitate aggregation within and across projects and enable tracking performance trends over a period. The six-point rating system, with six (6) representing the best and one (1) the worst score, allows for nuanced assessment of performance and results. The same rating scale is used for all rating areas as shown below.

UNIDO evaluation rating scale

Score		Definition*	Category
6	Highly satisfactory	Level of achievement presents no shortcomings (90% - 100% achievement rate of planned expectations and targets).	SATISFACTORY
5	Satisfactory	Level of achievement presents minor shortcomings (70% - 89% achievement rate of planned expectations and targets).	
4	Moderately satisfactory	Level of achievement presents moderate shortcomings (50% - 69% achievement rate of planned expectations and targets).	
3	Moderately unsatisfactory	Level of achievement presents some significant shortcomings (30% - 49% achievement rate of planned expectations and targets).	UNSATISFACTORY
2	Unsatisfactory	Level of achievement presents major shortcomings (10% - 29% achievement rate of planned expectations and targets).	
1	Highly unsatisfactory	Level of achievement presents severe shortcomings (0% - 9% achievement rate of planned expectations and targets).	

Note: * For impact, the assessment will be based on the level of *likely* achievement, as it is often too early to assess the long-term impacts of the project at the project completion point.

Table below contains the formula applied to transform the results of UNIDO’s six-point rating scale to the GEF’s four-point scale for sustainability³⁰.

Formula transforming UNIDO ratings into GEF ratings

UNIDO rating	UNIDO rating: sustainability	GEF rating: sustainability
6	Highly likely (HL)	Likely (L)
5	Likely (L)	Moderately Likely (ML)
4	Moderately likely (ML)	Moderately Likely (ML)
3	Moderately Unlikely (MU)	Moderately Unlikely (MU)
2	Unlikely (U)	Moderately Unlikely (MU)
1	Highly unlikely (HU)	Unlikely (U)

This formula underscores the distinction of ratings into “satisfactory” and “unsatisfactory”, both in applying UNIDO’s six-point rating scale and the transformation into the GEF four-point rating scale for sustainability. To ensure coherence in ratings, the rating is defined above. The use of benchmarks like the performance of peers for the same criteria helps to facilitate the interpretation of ratings.

Project design

Criteria for rating project design are related to the logical framework approach and the quality of overall project design. These criteria include:

³⁰ GEF uses a four-point scale for the criterion of sustainability.

Overall design quality

- Pertinence to country priorities, needs of target groups and UNIDO strategies
- Consideration and use of lessons and evaluative evidence from other projects
- Technical feasibility and validity of project design
- Budgeted M&E plan with clear timelines, roles, and responsibilities
- Adequacy of risk assessment (for example financial, sociopolitical, institutional, environmental and implementation aspects)

Logframe/logframe-like matrix based on the project's theory of change

- Clarity and logic of results-chain, including impacts, outcomes and outputs
- SMART indicators
- Adequacy of Means of Verification and Assumptions

Implementation performance

Implementation performance criteria correspond broadly to DAC criteria and need to be customized according to the context of the intervention to be evaluated.

- Relevance
- Effectiveness
- Efficiency
- Progress to Impact
- Sustainability of benefits

Partners' performance

UNIDO's projects are characterized by a group of main partners with specific roles and responsibilities. UNIDO itself acts as project implementer and supervisor. Though supplemented by implementation performance criteria listed above, the criteria to assess UNIDO as a partner are more specific and help to address frequent issues in its performance. Governments are local executers, and owners of the project and donors provide project funding. Hence, rating the partners is a key part of UNIDO project evaluations³¹. The six-point rating scale applies³².

The key issues to be addressed to rate **UNIDO's performance** are:

³¹ As practiced by the World Bank and the International Fund for Agriculture Development.

³² 6 = Highly satisfactory; 5 = Satisfactory; 4 = Moderately satisfactory; 3 = Moderately unsatisfactory; 2 = Unsatisfactory; 1 = Highly unsatisfactory

Project design

- Mobilization of adequate technical expertise for project design
- Inclusiveness of project design (with national counterparts)
- Previous evaluative evidence shaping project design
- Planning for M&E and ensuring sufficient M&E budget

Implementation

- Timely recruitment of project staff
- Project modifications following changes in context or after the Mid-Term Review
- Follow-up to address implementation bottlenecks
- Role of UNIDO country presence (if applicable) supporting the project
- Engagement in policy dialogue to ensure up-scaling of innovations
- Coordination function
- Exit strategy, planned together with the government
- Overall effectiveness of project management as outlined in the Project Document
- Project's governance system
- National management and overall coordination mechanisms
- UNIDO HQ-based management, coordination, monitoring, quality control and technical input

To assess the ***performance of national counterparts***, the evaluation looks into the following issues:

Project design

- Responsiveness to UNIDO's invitation for engagement in designing the project

Implementation

- Ownership of the project
- Financial contributions (cash or in-kind)
- Support to the project, based on actions and policies
- Counterpart funding
- Internal government coordination
- Exit strategy, planned together with UNIDO, or arrangements for continued funding of certain activities
- Facilitation of the participation of Non-Governmental Organizations (NGOs), civil society and the private sector where appropriate
- Suitable procurement procedures for timely project implementation
- Engagement with UNIDO in policy dialogue to promote the up-scaling or replication of innovations

For the assessment of *donor performance*, the following issues require ratings:

- Timely disbursement of project funds
- Feedback to progress reports, including Mid-Term Evaluation, if applicable
- Support by the donor's country presence (if applicable) supporting the project for example through engagement in policy dialogue

Gender mainstreaming

The UNIDO Policy on gender equality and the empowerment of women, issued initially in April 2009, and revised in March 2015 (UNIDO/DGB/(M).110/Rev.), provides the overall guidelines for establishing a gender mainstreaming strategy and action plans to guide the process of addressing gender issues in the Organization's industrial development interventions. It commits the organization that evaluations will demonstrate effective use of the UNEG guidance on evaluating from a human rights and gender equality perspective, as indicated by the Organization's meta-evaluation scores according to the UNEG Evaluation Scorecard.

In line with the UNIDO Gender Equality and Empowerment of Women Strategy, 2016-2019, all UNIDO technical assistance projects post-2015 are to be assigned a gender marker and should go through a gender mainstreaming check-list before approval. UNIDO's gender marker is in line with UN System-wide action plan (SWAP) requirements, with four categories: 0 — no attention to gender, 1 — some/limited attention to gender, 2a — significant attention to gender, 2b — gender is the principal objective³³.

Besides, Guides on Gender Mainstreaming for Inclusive and Sustainable Industrial Development (ISID) Projects in different areas of UNIDO's work have been developed and published during 2015³⁴, which have specific guidance on suitable outputs/activities/ indicators per technical area.

If the project design and gender analysis/existing indicators are not sufficient to allow for an accurate appraisal at the final evaluation, specific indicators could be created during the evaluation planning stage (preparing and revising the inception report) and assessed during the evaluation process. Together with the budget, the time required to adequately carry out a gender responsive evaluation will need to be taken into account. The evaluation time depends on the questions the assessment needs to answer, on how deep the analyses are requested to be, and on financial and human resources available as well as other external factors.

³³ http://intranet.unido.org/intra/Gender_Mainstreaming_Tools_and_Guides

³⁴ www.unido.org/en/what-we-do/cross-cutting-issues/gender/publications.html

For terminal evaluations of projects that have been approved after 2015, evaluations should assess if the rating was correctly done at entry, if appropriate outputs/activities/indicators and monitoring were put in place during implementation and what results can be actually observed at the time of terminal evaluation (in line with UNIDO's organizational results reporting to SWAP). The Gender Mainstreaming six-point rating scale should then be used accordingly.

For projects that have **2a** or **2b ratings** at project design/entry at least one evaluation team member should have demonstrated/significant experience in evaluating GEEW projects. For other projects, evaluators are encouraged to further familiarize themselves with the key gender aspects and impacts of UNIDO projects, both through the foundation modules of "I know Gender" online course of UN Women and the UNIDO's Guides on Gender Mainstreaming ISID Projects.