1. **EXECUTIVE SUMMARY**

This report presents findings of the mid-Term Evaluation (MTE) for the UNDP supported GEF project entitled “Nationally Appropriate Mitigation Action on Integrated Waste Management and Biogas in Uganda” conducted between September 02 and July 31, 2021. The MTE was conducted by Eduardo Quiroga, the international consultant and team leader until March 2022, and Michael Mbogga, the national consultant and team leader until July 2022.

*Table 1. Project information table*

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| --- | --- | --- | --- |
| Project Title: | NAMA on Integrated Waste Management and Biogas in Uganda | | |
| UNDP Project ID (PIMS #): | 5574 | PIF Approval Date: | 4 June 2015 |
| GEF Agency Project ID: |  | CEO Endorsement Date | 2 August 2017 |
| GEF project ID: | 9210 | ProDoc Signing Date: | 13 August 2018 |
| ATLAS Business Unit, Award # & Project ID: | Business Unit:  ATLAS Award ID: 00100437 | Date Project Manager hired: | October 2019 |
| Country(ies): | Uganda | Inception workshop date: | 19-20 February 2019 |
| Region: | Africa | MTE Completion Date: | November 2021 |
| Focal Area | Multi-Focal Area | Planned closing date: | August 2023 |
| Integrated Approach Pilot | IPAC-Food Security | Corporate Programme |  |
| Executing Entity/ Implementing Partner | Ministry of Finance, Planning & Development, and Ministry of Energy and Mineral Development | | |
| Project Financing | | at *GEF endorsement (US$)* | at *MTE 2021 (US$)* |
| (1) GEF Trust Fund or LDCF or SCCF or other vertical fund: | | 2,170,030 | **522,226** |
| (2) UNDP TRAC | | 900,000 | 92,215.8 |
| (3) Government | | 938,000 | 17,707,962 |
| (4) private investors | | 12,050,000 | 4,000,000 |
| (5) other international donors | | 900,000 | 0 |
| (6) other national stakeholders | | 350,000 | 0 |
| (7) Total co-financing (2+3+4+5+6) | | 15,138,000 | 21,800,778.8 |
| **PROJECT TOTAL COST (1+7)** | | **17,308,030** |  |

**1.1 Project Description**

The “*NAMA on Integrated Waste Management and Biogas in Uganda”* project aims to provide environmental benefits and reduce greenhouse gas emissions from improper and inadequate management and treatment of wastewater and organic waste in towns, municipalities, cities, and agro‐processing industry in Uganda. The project addresses institutional and technical capacity gaps for the implementation of integrated waste management (IWM) in cities and municipalities in Uganda. In addition, the project demonstrates successful biogas-based technology for electricity generation as well as the production of electricity from agricultural waste. The project also focuses on working through Public-Private Partnerships (PPPs) to demonstrate and invest in Municipal Solid Waste (MSW) and wastewater-based biogas plants. After successful demonstration of the technical and economic feasibility of MSW and wastewater-based biogas technologies, the project will move on to scaling-up the use of these technologies through the establishment of a grant and technical assistance fund. The purpose of the fund is to address financial and technical barriers to establishment of PPPs in MSW-based biogas plants in other cities around the country.

**1.2 Project Progress Summary**

There is slow progress towards outcomes because of delayed start of the project, and restrictions due to Covid19 lockdown in Uganda making project unlikely to meet all end of project targets. The project has built capacity and promoted public awareness for IWM in more than 10 cities across the country. Two waste-to-energy plants have been developed by project partners for wastewater and agricultural waste to energy (National Water Sewerage Corporation in Kampala and Kakira in Jinja respectively).

Feasibility studies to identity suitable site for MSW-to-energy plant at the Kampala landfill and for options for enhancing feedstock for the NWSC wastewater electricity plant have been completed. The MSW to energy plant at the Kampala requires a capital investment of US14.8m. Enhancing feedstock at the wastewater biogas plant is viable with a 70:30 mix, but only if there is no additional cost associated with delivering organic waste to the plant. The project is highly relevant and has raised interest in the business sector to use MSW and wastewater for generating electricity in Uganda.

Despite having two demonstration plants, the project has not been able to attract a private investor for the MSW plat at the Kampala Land fill. The process of securing private sector investor to work with cities requires a SPV which is a lengthy process. Any other arrangement that can bring in the private sector to invest in waste-energy enterprises should be pursued.

The project needs remedial action to address shortcomings in the monitoring and evaluation of project outputs and on sharing lessons learner with all stakeholders as well as in making the project fully gender responsive.

* 1. **MTE Ratings & Achievement Summary Table**

*Table 2. MTE Ratings & Achievement Summary Table*

| **Measure** | **MTE Rating** | **Achievement Description** |
| --- | --- | --- |
| **Project Strategy** | **N/A** | The project is highly relevant to country’s development objectives and in meeting its climate change mitigation objectives. Project indicators are not fully SMART and need to be revised to reflect what the project is doing and what is realistically attainable. |
| **Progress Towards Results** | **Goal**  **MU** | Capacity of cities and municipalities to undertake IWM approaches has been enhanced through continuous training, awareness raising and sensitization. Policies and local regulations with regards to waste management, have been strengthened; stakeholders along the waste management value chain trained in different aspects of IWM and resource recovery from waste. The project has not been able to attract private sector to invest in a waste to energy electricity generation plant at the landfill in Kampala. Such a plant, which was expected to be working by mid-term, would have served as a key demonstration for similar investments in other cities. |
|  | **Objective**  **MU** | Lifetime direct GHG emission reductions of 254,552 tCO2 eq and lifetime indirect GHG emission reductions of 491,104 tCO2 eq, from two waste to energy demonstration plants. |
|  | **Outcome 1:**  **MS** | Capacity building and IWM awareness raising conducted in 10 cities and 3 municipalities (Jinja, Masaka, Mbale, Mbarara Soroti, Lira, Gulu, Arua, Hoima and Fort Portal Kabale, Masindi and Tororo). Cities supported to update gender-responsive waste management plans and waste management ordinances.  IWM and MSW-based biogas technology promoted, waste collectors in the different cities and municipalities trained, and raised awareness, about IWM through several channels. Contributed to the evaluation of the National Urban Management policy for Uganda, incorporating aspects of waste-to-energy. A multi-stakeholder platform on waste management and energy recovery established. Support provided to establish a Technical Working Group for waste, sanitation management and resource recovery in the Greater Kampala Metropolitan Area (GKMA). |
|  | **Outcome 2:**  **MU** | Feasibility studies to: i) identify a suitable site for a biogas-to-electricity plant utilizing waste from the Kampala Capital City Authority and ii) enhance biogas production at the National Water and Sewerage Corporation (NWSC) biogas plant at the Nakivubo Wastewater treatment plant completed in December 2021 and January 2022 respectively. Due to the lengthy process involved in developing PPP between cities and the private sector, no investor has been secured for the Kampala landfill MSW-to- energy plant. Two waste-to-energy plants have been developed by project partners for wastewater and agricultural waste to energy (National Water Sewerage Corporation in Kampala and Kakira in Jinja respectively). The project team is contemplating options of ensuring that timely delivery of waste to energy demonstration plant for Kampala landfill or funds reallocated for alternative activities to help meet the project outcomes.  Apart from those from stakeholders, project has not been able to directly undertake any investments. |
|  | **Outcome 3:**  **MU** | A gender strategy and action plan to incorporate gender aspects in activity implementation at all levels developed. Waste flow surveys and feedstock characterization studies for Mbale and Mbarara commissioned.  The three end-of-project indicators for this outcome are i) establishing a technical assistance fund to attract MSM-based investments, ii) 5 MSM-based biogas project concepts prepared and iii) $900,000 in grants disbursed from the fund. Achievements of these is based on successful implementation of the demonstration in component 2, which has not yet happened. |
|  | **Outcome 4:**  **MU** | A project website developed, standardized baselines for the computation of emission reduction from biogas generation from municipal solid waste and industrial wastewater developed. Lessons learned in the course of activity implementation documented which will be necessary in informing further dissemination of similar biogas to electricity facilities in the country. The project website is no longer online, and even then, did not carry up-to-date information about the project. It would have been better to hold the project website on the domain of the ministry of Energy and Mineral Development for continuity. Waste management guidelines neither developed nor disseminated. |
| **Project Implementation and Adaptive Management** | **MU** | The project suffered a delayed start for nearly 12 months. This together with the unforeseen and intervening elements tied to the Covid-19 pandemic, which superseded the ordinary complexities of project implementation. The amalgamation of these factors led to a setback of the Project’s potential to deliver outputs and generate outcomes. The project has suffered delays in approval of annual workplans and delayed disbursement of funds, which subsequently affect execution of planned activities and procurement of services. |
| **Sustainability** | **MU** | The Project has solid political support at both the central and local government levels. The project board has representation from the city clerks from each of the five beneficiary cities.  The Prodoc anticipated the investment of the private sector, to the tune of US $ 12m, targeted to the conversion of waste to energy. The investment by National Water and Sewerage Corporation wastewater to energy plant in Kampala is more than US $15m, and Kakira Sugar Works Limited has invested US $ 4m in generating electricity from agricultural waste. Feasibility studies have indicated that the Waste to energy plant at the Kampala landfill requires US $14.8m. No private sector investor has been secured to make this investment. Engaging and bringing the private investors on board is essential, not only to ensure the achievement of project activities, but also to enable the sustainability of the interventions from the social, economic and environmental standpoints. |

**1.4** **Summary of conclusions**

**Project strategy**

***Conclusion 1:*** The project is highly relevant to national efforts for climate change mitigation. It is well aligned with the National Climate Change Policy 2015, National Climate Change Act 2021 and institutional frameworks to address climate change objectives and ambitions such as Vision 2040, and the National Development Plan (ii and iii) and is aligned with Uganda’s Nationally Determined Contributions to the Paris Agreement.

***Conclusion 2:*** Indicators for the project objective are not fully SMART. GHG emission reduction of 83,300 CO2eq/yr might not be achievable by the end of the project, given that it is likely there will be no replication of biogas plants in the other cities by project end.

From the results framework, the project only makes mention of Municipal Solid waste, yet the project is currently working and reporting on MSW, wastewater and agricultural waste. Indicator on component 2, focuses on only MSW, yet the computed 2.9MW generated comes from the three demonstration sites one for KCCA based on MSW and another for NWSC based on wastewater.

**Project implementation and adaptive management**

***Conclusion 3:*** The project planned to involve the private sector in waste-to-energy generation in Kampala and other cities mainly through Public-Private Partnerships. Private sector involvement is key to sustainability of interventions since these come in to fill the critical financing gap in the energy sector. Success of the next phase of the project as well as sustainability of the interventions beyond the lifetime of the project is highly dependent on attracting private sector investment into the waste to energy value chain.

**Conclusion 4:** The Project has solid political support at both the central and local government levels. The project board has representation from the city clerks from each of the five beneficiary cities. From the stakeholders’ responses to the survey, it is clear that the value of sustainability has risen considerably as far as stakeholders are concerned.

**Conclusion 5:** Project implementation was delayed for about a year after project start up due to the project’s internal management issues.Part of the delay was caused by negotiations between MEMD and UNDP to reallocate outputs undercomponent 1 from international consultants to NEMA, since it had been realized that NEMA carried the requisite capacity to conduct activities for these outputs. Additionally, the implementing Partner chose to recruit a technical project manager who is technically competent in energy rather than a general project manager, which took longer than anticipated.

Delivery of project outputs was affected by the nation-wide lockdown due to the outbreak of Covid-19. Although the PMU and others responsible parties tried to reach out to stakeholders using the internet, this did not have the same effectiveness as face-to-face trainings.

***Conclusion 6:*** Auditors recognized delays in approval of annual workplans and delayed disbursement of funds, which subsequently affect execution of planned activities and procurement of services. Release of funds for any year is normally done at end of the first quarter. Disbursement of GEF funds is not on track, with only 16% and 52% of the budget funds for 2019 and 2020 respectively. These delays could not be explained by Covid-19 lockdown since they appear in 2019 before the lockdown.

***Conclusion 7:***  Whereas many of the different aspects of M&E have been followed, the project did not make an explicit M&E plan at the inception meeting as had been provided for. This has led to limited reporting on total number of stakeholders that the project has been able to reach. Even with the limited implementation of project activities so far, the PMU appeared to underestimate the tasks related to reporting on project achievements and documenting/sharing of lessons learned. It is likely that the PMU and the implementing agency carried out activities with potential results that have been under reported.

***Conclusion 8*:** The project has involved some women in trainings and awareness activities, however the move towards gender responsiveness is lacking. The project has a gender strategy and reports gender disaggregated number of women and men reached directly by the project. However, there is no clear focus to target women in project activities, yet the prodoc mentions that women are key players in the waste sector in the cities and municipalities

**1.5 Recommendation Summary Table**

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| --- | --- | --- |
|  | **Recommendation** | **Responsible** |
| 1 | Revise project objective indicator to what can realistically be achieved. Additionally, revise outcome indicator to reflect what can realistically be achieved. Revise indicator for outcome 2 to include use of MSW, wastewater and agricultural waste in waste to energy projects. | MEMD/PMU, Project Board |
| 2 | Explore alternative approaches other than SPVs to bring the private sector to invest in waste-to-energy ventures in Kampala and other cities. These could include encouraging the cities to implement the polluter-pays-principle and thus reduce the operational costs of securing MSW. | MEMD/PMU, Project Board |
| 3 | Re-allocate funds for pilot plants to procurement of a demonstration mobile waste separation and sorting trommel machine(s) and equipment for monitoring biogas plant at Nakivubo Wastewater treatment plant NWSC. These mobile trommels could be used to demonstrate recovery of resources from Waste-Integrated waste management approaches since organic waste is used to produce biogas and/or organic fertilizer. | MEMD/PMU, Project Board, UNDP |
| 4 | Re-allocate funds for pilot plants to activities that prepare other cities for private sector investment in waste-to-energy ventures. | MEMD/PMU, Project Board, UNDP |
| 5 | Build on political support in the cities to expand work to attract private sector involvement in IWM in the different cities beyond IWM capacity building and awareness creation activities | MEMD/PMU, Project Board |
| 6 | Submit a request for a no-cost extension for 18 months to make up for the time lost, as the result of the ~12 months delay to start implementation of project activities and lockdown due to covid19 restrictions. | MEMD/PMU, Project Board |
| 7 | MEMD and UNDP should work together to ensure timely approval of annual workplans, disbursement of funds and reporting of project outputs and accounting for advanced funds. | PMU, MEMD, UNDP |
| 8 | Strengthen monitoring and reporting of implementation of project implementation and give more attention to recording and reporting on lessons learned and project achievements. This might require recruitment of an M&E officer as part of the PMU or hiring a national consultant for the remainder of the implementation. | PMU |
| 9 | Implement recommendations of the gender strategy to ensure that women and men are adequately represented in the IWM activities in the cities | PMU |