

Climate Change Mitigation through Methane Recovery and Reuse from Industrial Wastewater Treatment

Review CEO Endorsement and Make a recommendation

Basic project information

GEF ID

9830

Countries

Myanmar

Project Name

Climate Change Mitigation through Methane Recovery and Reuse from Industrial Wastewater Treatment

Agencies

UNIDO

Date received by PM

4/8/2019

Review completed by PM

5/5/2020

Program Manager

Ming Yang

Focal Area

Climate Change

Project Type

FSP

PIF ☐

CEO Endorsement ☐

Project Design and Financing

1. If there are any changes from that presented in the PIF, have justifications been provided?

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

There are some changes. Some of them need to be further addressed and justified.

The changes of output 1.1.2 in the PIF stage to the outputs of 2.1.1 and 2.1.2 are acceptable. They will better address the comments of the German Council member.

However, in Component 2, it is not clear how much capital will be used in tangible investments for the pilot waste water treatment and biogas plants. Please elaborate the amount of capital investment and the treatment capacities of the plants.

Please split GEF project financing amounts in each of the Components and indicate the amounts for each of the project outputs. For example, please divide \$2,895,647 of the GEF funding in Component 2 for Output 2.1.1 and Output 2.1.2. Please use the format of Table B in the PIF to present the information in Table B at the CEO ER document.

10/7/2019 MY:

Yes. Comments addressed and project document revised.

Response to Secretariat comments

Please see revised CEO Endorsement document “GEF6 CEO Endorsement-Myanmar Industrial Parks__Sept2019”. Table B has been divided into the GEF finance and co-finance amounts in each of the Components and Outputs as requested. Furthermore, Annex K specifies GEF project financing amounts per activity and per outputs.

In regard to the estimated capital investment cost and treatment capacity for potential closed anaerobic digesters, the project documents describe one in Yangon and one in Mandalay. The capital investment cost and treatment capacity were already elaborated in detail in Annex G: “Example technical specifications for wastewater treatment plants with biogas units.” Refer to Table 11: Technical parameters - Yangon demonstration wastewater treatment plant and Table 12: Technical parameters - Mandalay demonstration wastewater treatment plant in Annex G.

For easier cross reference under activity 2.1.2.3. we have added reference of Annex G and its elaboration of the technical and financial parameters of the potential pilot plants.

2. Is the project structure/ design appropriate to achieve the expected outcomes and outputs?

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Not at this time.

The information resented in Table B is not clear. Please see comments in Box 1 above. Further comments may be provided.

10/7/2019 MY:

Yes. Comments addressed and project document revised.

Response to Secretariat comments Please see response in box 1 above.

3. Is the financing adequate and does the project demonstrate a cost-effective approach to meet the project objective?

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Not at this time.

The co-financing is short of cash. Please consider adding back the \$1 million cash co-financing from SECO or from other stakeholders as indicated in the PIF stage.

10/7/2019 MY:

Yes, comments were addressed.

In their PIR or MTR for the project, the agency needs to update the GEF on FMO co-financing status.

Response to Secretariat comments Cash co-financing from SECO stated in the PIF is no longer available as priorities for SECO have changed and do not include Myanmar at this stage. In order to strengthen the co-financing strategy, UNIDO has continued negotiations with international organizations working in Myanmar. FMO – the Dutch development bank – has agreed to join efforts with UNIDO in the GEF project to promote green technologies for industrial wastewater treatment in Myanmar and to support investments in bankable projects for wastewater treatment. The main objective of FMO's initiative is to support the generation of conditions to finance this type of investment projects, therefore the willingness of structuring financial packages for WWT projects under this GEF project has been expressed through a co-financing letter. It is estimated that potential investments range from EUR 5-25 million. As such, a conservative increase of USD 5.6 million

(using an exchange rate of 1.12 USD/EUR) in co-financing under the category of “Loan” has been included in Table C, as well as updating of tables A and B. Other sections were updated to include FMO as a stakeholder in: 2b) Baseline projects, A3) Stakeholders, and new Table 9 regarding coordination with other GEF-financed projects and other initiatives. FMO’s co-financing letter is attached as part of Annex O.

4. Does the project take into account potential major risks, including the consequences of climate change, and describes sufficient risk response measures? (e.g., measures to enhance climate resilience)

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Yes. it is stated on pages 62-64.

Response to Secretariat comments

5. Is co-financing confirmed and evidence provided?

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Not at this time.

Please consider adding the \$1 million cash co-financing from the SECO as planned at the PIF stage. Without cash co-financing, it will be very difficult to start the implementation of the project.

The co-financing letter of UNIDO is not attached to the co-financing letter document. Please add it.

10/7/2019 MY:

Yes, comments were addressed.

In their PIR or MTR for the project, the agency needs to update the GEF on FMO co-financing status.

Response to Secretariat comments UNIDO Co-finance letter now included in re-submission package.

6. Are relevant tracking tools completed?

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Yes. It is indicated in Annex E.

Response to Secretariat comments

7. Only for Non-Grant Instrument: Has a reflow calendar been presented?

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

N/A

Response to Secretariat comments

8. Is the project coordinated with other related initiatives and national/regional plans in the country or in the region?

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Not completed.

Please use a table to show any coordination of this project with other relevant GEF-financed projects and other initiatives in the country that are related to waste water treatment and biogas generation plants.

10/7/2019 MY:

Yes, comments addressed.

Response to Secretariat comments Please refer to the new table Table 9 Coordination with other GEF-financed projects and other initiatives in the new CEO Endorsement document.

9. Does the project include a budgeted M&E Plan that monitors and measures results with indicators and targets?

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Yes. It is showed on pages 72-74.

Response to Secretariat comments

10. Does the project have descriptions of a knowledge management plan?

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Yes. It is staged on page 70.

Response to Secretariat comments

Agency Responses

11. Has the Agency adequately responded to comments at the PIF stage from:

GEFSEC

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

N/A

Response to Secretariat comments

STAP

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Yes. Comments were addressed.

Response to Secretariat comments

GEF Council

Secretariat Comment at CEO Endorsement

4/15/2019 MY:

Yes. The Council comments were carefully addressed.

However, the Germany Council member requested to review the draft final project documents before CEO endorsement. Please see below:

"Germany requests for the following project that the Secretariat sends draft final project documents for Council review four weeks prior to CEO Endorsement".

The GEF SEC will circulate the documents after initial technical clearance to comply with the requirement of the German Council member. .

Response to Secretariat comments**Convention Secretariat****Secretariat Comment at CEO Endorsement**

4/15/2019 MY:

Not completed.

At the PIF stage, the GEF SEC commented the following: "Cost-efficiency is still low. Please improve during project preparation period."

Please justify how the project improved cost-effectiveness from the PIF stage to the CEO ER stage.

10/7/2019 MY:

Yes, comments were addressed.

Response to Secretariat comments

The project has significantly increased cost-effectiveness from the PIF stage to the CEO ER stage. Reductions of both direct and indirect emissions have more than doubled. The PIF estimated 140,000 metric tons (direct emissions reduction cost of USD 28.46 per tCO₂eq) and 56,000 - 210,000 metric tons (indirect). While the in the RCE it is estimated at 282,494 metric tons (direct emissions reduction cost of USD 14.11 per tCO₂eq) and 847,481 – 1,345,363 (indirect). Equating to a saving of USD 14.35 per tCO₂eq. It must be noted that during PIF development a similar CDM project in China was used to calculate emissions reductions and this may have provided an inaccurate result.

The GEF project achieves a relatively impressive GHG abatement cost for emissions reductions from a range of interventions, not only from methane capture from wastewater, but also resource efficiency interventions. Take for instance a comparative example, a CDM project in China with similar wastewater treatment and biogas technology employed, operating in an established sector for such technology:

Calculation: [1]¹

Total investment cost: 2,257,000 €

Considering adjustments for leakage, emission reductions are the difference between baseline and project emissions, which is calculated to be: 16,217.9 tCO₂e/yr

Emissions reductions over 5 yrs: 81,089.5 tCO₂e/yr

Cost per ton: 27.83€

During project design, cost effectiveness was significantly improved against the baseline interventions. The project design includes a more effective alternative of intervention for improving wastewater management in the country. This includes the incorporation of low-carbon technology for wastewater treatment systems, together with a comprehensive strategy to catalyze industrial sector engagement with improving their environmental performance in a more sustainable manner. Improved cost effectiveness is namely achieved through the incorporation of the TEST approach through demonstration activities in companies, capacity building and inclusion of prevention strategies in policy and regulatory framework. Therefore, the project design exemplifies an integrated approach combining methane capture from wastewater, energy efficiency, and resource efficiency interventions in order to improve cost effectiveness and maximize potential GHG emission reduction. For more information see the additional sheet titled “9-Cost Effectiveness” in Annex Q GHG Calculations in the resubmitted CEO Endorsement document.

[1] Source: <https://iopscience.iop.org/article/10.1088/1755-1315/191/1/012082/pdf>

Recommendation

12. Is CEO endorsement recommended?

Secretariat Comment at CEO Endorsement

10/12/2019 MY:

Yes, technical comments were addressed.

In their PIR or MTR for the project, the agency needs to update the GEF on FMO co-financing status.

However, on page 67, the project document reads the following:

"Upon request of the government, UNIDO will provide partial execution support and will recruit a Project Management Unit (PMU). See attached letter of request of request in Annex S. The PMU will be established by UNIDO with the main function to coordinate the work of the different executing partners, undertake international procurement and recruitment of consultants or project staff and provide technical support as needed."

Please revise the project document and budget. The Agency should not provide any execution support or functions to the project even with the request from the OFP of the country. If the Agency wants to insist it, please justify why the country cannot find any other agencies to undertake the executing support for this project. Please do not keep justifying why only UNIDO should do it.

5/15/2020 MY:

Not at this time.

Under section A.6 Institutional Arrangement and Coordination, an indicative budget of **\$3,514,389** is allocated to executing entities:

Figure 14: Project Management Structure

According to the above-mentioned executing arrangements, UNIDO will establish the following maximum budget allocation per PEEs, which is aligned with the project budget presented in Annex K. Contracts with PEEs will be issued according to annual work plans and based on performance progress.

Table 9: GEF-funded budget per PEEs

Project Execution Entity	Project's Output	GEF-funded budget (USD)
ECD	Output 1.1.1	180,000
	Output 1.1.3	200,000
	Sub-total	380,000
DUHD, Yangon office	Output 1.1.2	319,200
	Output 2.1.1	742,720
	Output 2.1.2	2,152,927
	Output 3.1.1 (activities 3.1.1 and 3.1.2)	110,000
	Project management cost	189,742
	Sub-total	3,514,389

However, the total project budget as per table B is **\$3,984,589** as following:

Component 3: Monitoring and Evaluation	Technical Assistance	Outcome 3.1: Project achieves objective on time through effective monitoring and evaluation	Output 3.1.1: M&E mechanism developed and applied.	GET	200,000	1,458,065
Sub Total (\$)					3,794,847	23,845,322
Project Management Cost (PMC)						
GET					189,742	910,000
Sub Total(\$)					189,742	910,000
Total Project Cost(\$)					3,984,589	24,755,322

1. Please explain where to use budget difference of \$470,200. If the budget of \$90,000 is reserved from the \$470,200 to carry out the MTR and TE activities, there is still a missing part (\$380,200). Please explain where to use it.
2. The co-financing (\$5.6M loan) from the FMO should be entered as co-financing from “donor Agency” rather than “other”.

5/18/2020 MY:

Yes, the comments were addressed and the project document was revised accordingly.

The PM recommends technical clearance.

Response to Secretariat comments

The CEO endorsement document has been updated so that execution functions will be conducted by national stakeholders. Following consultations with the main counterparts, governmental institutions in Myanmar have been identified to undertake the role of Project Executing Entity (PEE) as following:

1. The Department of Urban and Housing Development (Yangon office) of the Ministry of Construction will undertake the role of main PEE in charge of the execution of outputs 1.1.2, 2.1.1, and 2.1.2 and monitoring activities 3.1.1 and 3.1.2 of output 3.1, as well as the establishment of the project management unit (PMU).

2. The Environmental Conservation Department of the Ministry of Natural Resources and Environmental Conservation will undertake the role of PEE in charge of outputs 1.1.1 and 1.1.3.

Commitment on these execution roles are confirmed through letters from these institutions attached in **Annex S (new upload)**. Budget allocation per outputs and activities remain the same. Hence, each institution will implement according to the budget distribution per output and activities as described in annex K and detailed in the **new table 9** in the CEO endorsement document.

The following sections have been updated to reflect the previous change:

- Clear definition of the PEE in each output description and corresponding rewording on activities where applicable. ***Section 3) The proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project;***
- Updating of mandate/role of stakeholders in the project, table 6, ***section A.3. Stakeholders.***
- Identification of mitigation strategies for institutional risk associated with the limited experience of national institutions in executing similar projects, ***section A.5 Risk, table 7.***
- Updating of the new execution arrangements in section ***A.6. Institutional Arrangement and Coordination***
- Due to the introduction of new table 9, the previous table 9 (incorporated after the first round of the GEF Secretariat's comments) was renumbered as table 10.
- Updating of information related to stakeholders' execution roles in ***Annex M. Environmental and Social Management Plan.***

Response May 18, 2020:

Table 9 reflected subtotal budgets per PEE (ECD = \$ 380,000, DUHD = \$3,514,389). It has been updated to show the total budget of \$3,984,589, including subtotals for both PEE, plus M&E costs covered by UNIDO. The co-financing from FMO was changed to "donor Agency" rather than "other".

Review Dates

	Secretariat Comment at CEO Endorsement	Response to Secretariat comments
First Review		
Additional Review (as necessary)		
Additional Review (as necessary)		
Additional Review (as necessary)		
Additional Review (as necessary)		

CEO Recommendation

Brief Reasoning for CEO Recommendations

The objective of this project is to increase Myanmar's efforts towards climate mitigation by minimizing GHG emissions through the application of integrated low-emission wastewater treatments and the Transfer of Environmentally Sound Technologies (TEST). Myanmar signed the Paris Agreement in April 2016, but has not ratified. Its Nationally Determined Contributions (NDCs) stipulated policies and measures for industrial processes and environment to address climate change, and the proposed project will support these priorities.

The Government has enforced a number of policy guidelines for the promotion of environmental conservation and water management in order to reduce air and water pollution. However, nationwide climate change mitigation remains a very recent priority with the NDCs representing the first policy level approach to mitigation. The food processing industry is accounting for 64% of industrial activity mostly consisting of registered SMEs in the industrial zones of Yangon and Mandalay. This industry generates large quantities of effluents with a high organic load, hence significant quantities of GHG are emitted. The root causes of wastewater management problems include poor regulatory framework, lack of policy incentives and absence of environmentally sound treatment system.

UNIDO is currently implementing a pilot national Resource Efficient and Cleaner Production (RECP) program in Myanmar, and has substantive experience of the TEST application in the region. The proposed project will build on UNIDO's capacity building activities in Myanmar by introducing necessary policies, economic incentives and awareness raising to enable a self-sustaining environment encouraging low carbon industrial development centered in Yangon and Mandalay.

The project includes the following components:

1. 1. Policy framework and national capacity for water quality and wastewater management improved; Component;
2. 2. Pilots at company and industrial park levels implemented applying UNIDO's TEST integrated approach; and
3. 3. Monitoring and Evaluation

The project is aligned with GEF-6 focal area objective CCM-1, Promote the timely development, demonstration, and financing of low-carbon technologies and mitigation options.

Co-financing of \$27.75 million comes from numerous partners: the government, the private sector, a bilateral financial institution (FMO), and UNIDO.

The project will mitigate 1.13 million tonnes of CO₂e including 282,494 tonnes directly and 847,481 indirectly in this lifetime operations.