

Scientific and Technical Advisory Panel

The Scientific and Technical Advisory Panel, administered by UNEP, advises the Global Environment Facility
(Version 5)

STAP Scientific and Technical screening of the Project Identification Form (PIF)

Date of screening: November 06, 2017
Screener: Sunday Leonard
Panel member validation by: Ralph E. Sims
Consultant(s):

I. PIF Information *(Copied from the PIF)*

FULL-SIZED PROJECT	GEF TRUST FUND
GEF PROJECT ID:	9830
PROJECT DURATION:	5
COUNTRIES:	Myanmar
PROJECT TITLE:	Climate Change Mitigation through Methane Recovery and Reuse from Industrial Wastewater Treatment
GEF AGENCIES:	UNIDO
OTHER EXECUTING PARTNERS:	Department of Urban and Housing Development under the Ministry of Construction Environment Conservation Department under the Ministry of Natural Resources and Environmental Conservation Directorate of Industrial Supervision and Inspection under the Ministry of Industry University of Yangon, RECP Office
GEF FOCAL AREA:	Climate Change

II. STAP Advisory Response *(see table below for explanation)*

Based on this PIF screening, STAP's advisory response to the GEF Secretariat and GEF Agency(ies):
Minor issues to be considered during project design

III. Further guidance from STAP

1. The project aims to reduce emissions of greenhouse gases (GHGs), specifically methane, by better wastewater management of industrial organic effluents. This is to be demonstrated using UNIDO's Transfer of Environmentally Sound Technologies (TEST) integrated approach. Training and awareness programmes of the pilot low-emission technology are linked in. It is expected that the private sector will contribute most of the co-financing.
2. Around 90% of industrial wastewater in Myanmar remains untreated before discharge to waterways, leading to human health threats, as well as GHG emissions including methane and nitrous oxide.
3. Identified barriers include the lack of (1) policy incentives, (2) finance, (3) enforcement, (4) relevant technology skills, (5) business awareness, and (6) poor urban planning. This initiative, taken under the RECP programme by UNIDO, is a way to overcome these barriers, and to help meet the NDC target of Myanmar. The project will build on existing mitigation activities.
4. The actions planned in the project make logical sense, and the science related to the proposed treatment technologies and measuring their impacts on effluent discharges is well understood. It appears the technology to be used is still under consideration but "could" be a closed anaerobic digester system instead of open ponds. There are major cost and efficiency differences between the two.

5. Information provided in the project document indicates that the project will mainly focus on the mitigation of methane emissions. However, as rightly indicated in the second paragraph on page 4, wastewater is also an important source of nitrous oxide, the third most important GHG released to the atmosphere and the most significant ozone-depleting substance (ODS) (see: UNEP, 2013: <http://wedocs.unep.org/handle/20.500.11822/8489>; Beaulieu et al., 2010: <http://pubs.acs.org/doi/abs/10.1021/es1016735?journalCode=esthag>; Merbach et al., 1996: https://www.researchgate.net/profile/Thomas_Kaletka/publication/232262494_Nitrous_Oxide_and_Methane_Emissions_from_Riparian_Areas_of_Ponded_Depressions_of_Northeast_Germany/links/55e5483b08aecb1a7ccb9a32.pdf; Sovik et al., 2006: <https://dl.sciencesocieties.org/publications/jeq/abstracts/35/6/2360>).
6. Curbing nitrous oxide emissions related to ozone depletion was not considered in presenting the expected GEBs arising from this project.
7. It is not clear what parameters will be employed when making the final selection of the most appropriate technology for the demonstrations, how much local manufacture may be involved, or who will make the final decision. The organic solids content of the effluents to be treated are not presented but are likely to be low. This should be taken into account when selecting the treatment system.
8. Furthermore, studies have shown that poorly designed wastewater treatment could effectively lead to increased nitrous oxide emissions (see for example <https://phys.org/news/2010-06-survey-poorly-wastewater-treatment-emit.html> and <https://phys.org/news/2011-08-wastewater-recycling-greenhouse-gas-emissions.html>). Hence, it is important that the demonstration pilots are well designed and maintained.
9. Local expertise will be utilized, and partner companies and industrial parks are being sought. It has been assumed there will be considerable interest in being involved, but this will partly depend on the investment and operating costs. Reducing freshwater demands on-site and recycling some of the treated water for irrigation will be co-benefits. However, there is a risk, not listed, that the USD15M equity assumed from the private sector for the project may not materialise.
10. Reductions of 140 kt CO₂-eq are projected with a further 56 – 210 kt CO₂-eq avoided from indirect emissions (Table in Section F). However, Section 5 when quoting these same numbers only discusses CO₂ reductions from the biogas displacing fossil fuels and reduced deforestation. Nitrous and methane emissions will also be reduced (as shown in the Table) but, it seems, are not included in the GEB calculation. The emission reduction potential should therefore be recalculated and presented in terms of tonnes CO₂-equivalent.

The issues raised above should be addressed by the project proponent to improve the quality of the project.

<i>STAP advisory response</i>	<i>Brief explanation of advisory response and action proposed</i>
1. Concur	In cases where STAP is satisfied with the scientific and technical quality of the proposal, a simple “Concur” response will be provided; the STAP may flag specific issues that should be pursued rigorously as the proposal is developed into a full project document. At any time during the development of the project, the proponent is invited to approach STAP to consult on the design prior to submission for CEO endorsement.
2. Minor issues to be considered during project design	STAP has identified specific scientific /technical suggestions or opportunities that should be discussed with the project proponent as early as possible during development of the project brief. The proponent may wish to: (i) Open a dialogue with STAP regarding the technical and/or scientific issues raised. (ii) Set a review point at an early stage during project development, and possibly agreeing to terms of reference for an independent expert to be appointed to conduct this review. The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement.
3. Major issues to be	STAP proposes significant improvements or has concerns on the grounds of specified major scientific/technical methodological issues, barriers, or omissions in the project concept. If STAP

considered during project design	<p>provides this advisory response, a full explanation would also be provided. The proponent is strongly encouraged to:</p> <p>(i) Open a dialogue with STAP regarding the technical and/or scientific issues raised; (ii) Set a review point at an early stage during project development including an independent expert as required.</p> <p>The GEF Secretariat may, based on this screening outcome, delay the proposal and refer the proposal back to the proponents with STAP's concerns.</p> <p>The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement.</p>
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