

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: May 08, 2017
Screener: Sunday Leonard
Panel member validation by: Ricardo Orlando Barra Rios; Ralph E. Sims
Consultant(s):

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

FULL-SIZED PROJECT	GEF TRUST FUND
GEF PROJECT ID:	9219
PROJECT DURATION:	5
COUNTRIES:	Thailand
PROJECT TITLE:	Applications of Industry-urban Symbiosis and Green Chemistry for Low Emission and Persistent Organic Pollutants (POPs)-Free Industrial Development in Thailand
GEF AGENCIES:	UNIDO
OTHER EXECUTING PARTNERS:	<ul style="list-style-type: none">- Department of Industrial Works under the Ministry of Industry;- Pollution Control Department under the Ministry of Natural Resources and Environment;- The Federation of Thai Industries; and,- Chemical Engineering Department, Kasetsart University.

GEF FOCAL AREA: Multi Focal Area

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):
Concur

III. Further guidance from STAP

The proposed multifocal project targeted at Thailand seeks "to reduce greenhouse gas emissions, as well as releases of persistent organic pollutants and other harmful chemicals from industries and urban centres through the application of industry-urban symbiosis and green chemistry technology." The project is subdivided into four components including policy development, national capacity and awareness raising on industry-urban symbiosis and POPs, pilot demonstration of industry-urban symbiosis and monitoring and evaluation.

The project document have been well prepared and thought through and the project objective and expected outcome and outputs are consistent with the problem analysis. The STAP thinks that the project would deliver the desired result if well implemented. The STAP therefore concurs with the project and provides the following guidance to be considered during the full project design stage:

1. In Component 3, the project aims to demonstrate exchanges between industrial parks and neighbouring urban areas with specific focus on household waste management. It will be useful to provide information on the appropriateness, environmental sustainability and impact on human health of the waste to energy technology that is being considered. It is important to ensure that selected technology does not end up transferring pollution from one media to another. Hence, a life cycle assessment of the chosen technology is highly desirable. If technology such as waste to heat is going to be implemented, then it is important to

provide information on how the residual waste “ which is envisaged to be highly toxic ” will be managed. We suggest that the STAP report on POPs disposal technology be consulted - https://www.thegef.org/sites/default/files/publications/POPs_Disposal_Final_low_1.pdf

2. Similarly, Activity 1.5.3 will seek to introduce and demonstrate low carbon and green chemistry technologies. It will useful to provide an indication of the green chemistry technologies that will be introduced. Have they been proven and what will be the ease of introducing them into existing systems?

3. The savings from the waste to energy system (waste burner equipped with co-processing of heat and electricity) was compared to landfilling without gas collection and valorisation system. This seems not be a balanced comparison. Would the landfilling be more appropriate if waste burner system is compared to a landfilling that incorporates methane capture for energy purposes? This should be considered during the project development stage

4. It will be useful for inventory purpose to provide information on the specific POPs that will be disposed in table on global environment benefits

5. Activity 1.1.6 will facilitate SME access to investment opportunities. It will be useful to provide specific information on how this facilitation will be done. Is it by helping develop business models or plans?

6. It will be useful to assess the cost of reducing one ton of CO₂ in this project and compare that with theoretical globally acceptable cost so as to provide more justification for the project.

7. The claimed 1.3 Mt CO₂-eq (Section F) seems approximately OK given the GHG emission reduction from energy efficiency is a guesstimate and needs further clarification as noted. The information provided on the solar PV and waste-to-energy projects is OK with some exceptions.

8. The assumption of a solar PV system running at peak output for 12 hours a day (page 13) even in Thailand is not correct. The capacity factor for the local solar radiation level and location needs to be accounted for in the calculation. A 10 year life assessment is too short for modern PV panels (though any batteries will need replacing).

9. US-EPA data on solid waste properties as used may not reflect the solid waste characteristics in Thailand and should be verified. Ascertaining the \$/t CO₂ avoided (as in your suggestion) would be useful but will vary for each of the 3 components “ with different degrees of difficulty in the calculations.

10. Stakeholders: one of the stakeholders identified is the Department of Chemical Engineering, Faculty of Engineering, Kasetsart University. But we think that the project should seek to broaden the academic stakeholders beyond just one university especially because the project seeks to develop academic curriculum. Input from various academic stakeholders at the early stage will increase buy-in to the curriculum and could also increase the robustness and scientific credibility of the outputs.

<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	<p>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:</p> <p>(i) Open a dialogue with STAP regarding the technical and/or scientific issues raised.</p> <p>(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.</p> <p>The proponent should provide a report of the action agreed and taken, at the time of submission of the</p>

	full project brief for CEO endorsement.
3. Major issues to be considered during project design	<p>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 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>