STAP SCREENING TEMPLATE

GEF ID	**11543**
Project title	**Life cycle management project in plastic industry in China**
Date of screen	**26 November 2024**
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1. Summary of STAP's views of the project

The motivation for this project is clear from the estimate that China accounts for nearly one-third of global plastic production. The goal of the project is to "eliminate the production and use of problematic and avoidable plastics, reduce and prevent toxic and hazardous chemicals release, improve the plastic reuse and recycling system, and promote the utilization of low-value plastic waste, thus facilitating the transformation of plastics industry towards circularity and zero waste in China." The project includes a diverse array of project outcomes and outputs that include policy development, demonstration projects that feature innovative product delivery designs and technological options, and financing models.

The proposal would benefit from a more consistent and clear explanation regarding the aim of reducing the production of "avoidable plastics". Does this imply the goal of reducing primary plastic production and the production of plastic additives that are of concern? If reducing plastic and plastic additive production is indeed a goal, then the significant expected GEB of reduced GHG emissions would be justified. However, if not, then this expected benefit of the project requires re-evaluation. This question arises because much of the proposal addresses recycling, for which such reductions in GHG emissions would be less ambitious. Also, if it is a goal, then engaging the oil and petrochemical industry and plastic producers is needed since reducing plastic production and plastic additives of concern involves supply-side management and not just demand-side management. The proposal indicates that the petroleum and chemical industry associations have been consulted but it is not clear that they support the goal of reducing primary plastic and plastic additive production. Another implication of this policy choice is that the proposal should consider alternatives that can provide the functions now delivered by plastics and plastic additives of concern and incorporate interventions to facilitate adoption. Without alternatives, it will be difficult to stop plastic production and use.

The scope and sectors involved need to be clearly articulated since strategies to achieve the main goal depend on the sector. This and other elements of the program need to be explained in a revised Theory of Change (ToC) that considers explicit assumptions, barriers and enabling elements. It is likely that individual ToC will be needed for each sector considered.

Note to STAP screeners: a summary of STAP's view of the project (not of the project itself), covering both strengths and weaknesses.

STAP's assessment*

- □ Concur - STAP acknowledges that the concept has scientific and technical merit
  Minor - STAP has identified some scientific and technical points to be addressed in project design
- □ Major - STAP has identified significant concerns to be addressed in project design

Please contact the STAP Secretariat if you would like to discuss.

2. Project rationale, and project description – are they sound?

See annex on STAP's screening guidelines.

1. **Systems thinking** is not featured in this proposal, as is evident in the Theory of Change (ToC). Systems thinking is implicit in the development of project components. The proposal would be strengthened by

considering the entire system of plastic production, use, and disposal so that "leakage" and unintended consequences are avoided when implementing activities, e.g., the unintended consequence that reducing the use of single-use plastics increases other uses of plastics because the supply is not constrained, redeployment of plastic additives that are of concern to other industries or products because again, the supply of additives was not addressed. Systems thinking is also needed to consider social/societal factors such as behaviour change to promote reduced plastics use and recycling and impacts on labour currently involved in waste collection and sorting.

2. **Baseline, barriers and enablers.** The proposal clearly explains the baseline conditions including measures that came into effect in 2021 ("Opinions on Further Strengthening the Control of Plastic Pollution") that included a timeline for controlling the production of disposable plastic products and establishing a management system across the life cycle of plastic products. The proposal also clearly lays out 4 main gaps in policies that justify the choice of measures being pursued in this proposal (p 12). However, an analysis of whether the 2021 measures have achieved their desired goal was not, but should be, included.

Barriers and enabling elements were not discussed.
It is interesting that while the global rate of recycling is ~10% (Geyer et al. 2020, https://doi.org/10.1016/B978-0-12-817880-5.00002-5) however the rate in China is 31% in 2021 (the source of that figure is not referenced). What factors or system characteristics contribute to this higher level of recycling and how does the proposal build on these factors/characteristics?

3. **Uncertain futures** were not discussed but would be useful to include so that the proposal includes measures of adaption to circumstances where assumptions are not upheld and where drivers and enabling elements did not have the desired effect. Such possibilities were covered to some extent in the risk analysis. Please consult STAP's guidance on considering uncertain futures.

4. **Theory of Change (ToC)** should be revised to improve the design of causal pathways and to include enabling elements and drivers (see STAP's primer on the Theory of Change). Currently, the ToC lists the baseline conditions and root causes but lacks logic-based causal pathways that connect these to expected results and the goal/impact of the project. For example, what are the barriers that will need to be overcome and enabling elements that must be in place for the intervention of "establish a strong framework for life cycle management in plastics industry"? What is the logic that connects this intervention to the expected result of "strengthen national policy and regulatory frameworks to promote the reduction of POPs additions and emission from plastic products"?
The discussion of project components and expected results (p 15) implicitly lists assumptions in the logic pathways, e.g., updating the regulatory framework aligns with national policies that "will provide long-lasting guidance for the transformation of the plastics sector to circular economy" and that the demonstration projects will showcase BAT as well as sound financial models that will "leverage resources to fill in the existing gaps". The proposal also assumes that "Technology demonstration and …diffusion activities… will attract significant private sector funding," however, the basis for this assumption needs to be better described. These and other assumptions need to be explicitly stated and accompanied by some discussion of how sound they are. The assumptions should also feature in the theory of change diagram.

5. Project Components
1. Policy and regulatory framework strengthened. This component would benefit from an explanation of issues related to policy coherence.
- how will a balance be struck between advancing regulatory policies oriented towards design and performance criteria for plastics and plastic products vs setting targets for reduced plastics production? For example, the August 2020 initiative "Joint Initiative on Working Together for the Sustainable Development of Plastics" addresses recycling, easy recovery and degradation but not reductions in plastic production (p 20)
- which policy instruments or activities will be aimed at constraining demand? (p 15)
- what elements are required to close material loops beyond sorting because of technological constraints on recycling?

2. Reducing POPs and GHG emissions presumably builds on outputs from Component 1 by, for example, demonstrating "green" designs and avoiding hazardous additives that would enable greater use of recycled content. There are many technological challenges to the efficient recycling of plastics mentioned in this component. Presumably the full project proposal will address these challenges to demonstrate that the proposed activities are technically and economically feasible while delivering GEBs.
- what steps will be taken to identify which products and for those, how the product lifespan can be extended or whether alternative modes can deliver the intended function?
- what is the fate of collected "low-value" plastic waste? Intentions of "high value utilization of low value recyclable plastics" need to be mindful of the technical and economic challenges of recycling, including the problem presented by plastic additives of concern (p 18).

3. Financial models for green recycling of plastics should be based on feasibility studies of recyclability since most plastics currently produced cannot be recycled due to technological or compositional barriers (e.g., the presence of plastic additives). The proposal references financial mechanisms and policies such as extended producer responsibility and the polluter pays principle but few details are provided on how such policies could be realistically implemented and for which product lines. Also, few details are provided for the intention to develop an innovation fund "to leverage resources and investment" – have other funding bodies or stakeholders been consulted to assess the feasibility of this outcome?

4. Project monitoring and evaluation, knowledge management needs details on what will be monitored and how that monitoring information will feed into improving the delivery of this project. The proposal would benefit from mentioning how knowledge sharing will draw on the experiences of other relevant jurisdictions. For example, what lessons have already been learned?

6. **Sectors and stakeholders** have been consulted including NGOs, e.g., Ellen MacArthur Foundation, World Wildlife Fund. The proposal should clarify whether consultations have been held with the petro-chemical industry (e.g., suppliers of virgin plastic feedstock and makers of plastic additives) and plastic manufacturers, as separate from manufacturers of plastic products (it appears that associations representing these industries were at a kick-off meeting (p 31).
- financial institutions would appear to be important contributors to the success of this project but few details are provided on their engagement.
- gender and women's empowerment is mentioned numerous times throughout the proposal but without a logical connection to the proposed activities. For example, why would developing criteria for identifying and then developing a list of chemicals and polymers of concern and other aspects of this component need to be gender-sensitive? (outcomes 1.1 and 1.2). Given the interest in gender-appropriate measures, it is interesting that women have not been consulted according to the information provided on stakeholder engagement.

7. **Contribution to GEBs** comes from core indicators 6 (reduced GHG emissions), 9 (chemicals of global concern), 10 (POPs to air) and 11 (people benefitting).
- did the calculations of reductions in GHG emissions due to recycling consider the energy needed for collection, sorting and then recycling? (p 22).
- as noted above, substantial reductions in GHG emissions have been calculated from reduced plastic production, but this outcome is not clearly explained in the proposal.
- GEBs achieved from the recycling of low-value plastic should be bolstered by describing the technical feasibility of such recycling.
- most waste plastic, at least globally, is short-lived (as discussed on p 17) and so recently produced plastics would be unlikely to contain POPs listed under the Stockholm Convention (p9); thus, a better explanation is needed to justify the estimated removed or avoided POPs
- Since GEBs related to POPs are listed, the proposal needs to provide details of how plastics containing BFRs and SCCPs will be handled since recycling must be avoided so that these POPs are not re-circulated in "new" products (note that SCCPs are not BFRs). Also, most HBCDD has been used in building insulation and, as such, requires a strategy of engaging with the construction and demolition industries. (p 23).

8. **Policy coherence**. The development of policy is part of component 1. This activity would benefit from a discussion of policy coherence, particularly in regards to meeting the goal of reducing plastic production. Not discussed are examples where the goal of reducing plastic pollution, for example, through the use of lightweight packaging, can be at odds with other goals such as reducing GHG during product shipping or ensuring food hygiene.

9. **Alignment with current GEF investments** is described, such as how this project will contribute to the goals of the Plastic IP. Much of the discussion regarding the alignment of this project is devoted to ongoing policy initiatives within China and not other GEF projects (p 20).

10. **Knowledgement management (KM).** The proposal lists knowledge management activities, as noted above under component 4.

11. **Innovation and scalability**. A stronger argument for innovation (e.g., policy, technical) could be developed since innovations will be needed to achieve the desired outcomes and goals. An argument for scalability is provided by the engagement of key stakeholders including the Plastic Processing Industry Association but without further detail to enable evaluation.

12. **Monitoring and evaluation**. As noted above under this project component, the proposal needs more detail on what will be monitored and how the choice of metrics for monitoring will enable project evaluation and improvement.

13. **Risks.** Risks and measures taken to mitigate risks are generally well described. Risks related to not achieving policy coherence could be better explained. Risks related to technological feasibility (e.g., processes available for sorting and recycling of low-value plastics) and economic feasibility (e.g., of handling POPs) should be addressed.

Note: provide a general appraisal, asking whether relevant screening guideline questions have been addressed adequately – not all the questions will be relevant to all proposals; no need to comment on every question, only those needing more attention, noting any done very well, but ensure that all are considered. Comments should be helpful, evaluative, and qualitative, rather than yes/no.

3. Specific points to be addressed, and suggestions

In general, the proposal contains many strengths and builds on China's history of managing plastics. However, as noted above, more details are needed for many sections, e.g., monitoring and evaluation.

STAP recommends that the points and questions raise in Section 2 of this review be addressed, including the following points that require attention:

1. The scope of the activities and sectors involved should be clarified. Notably, the proposal needs to clarify if reducing primary plastics production and the production of harmful plastic additives are part of the proposal as described in Section 1. The proposal would benefit from describing which sectors in particular will be targeted since interventions need to be tailored to different sectors. For example, mention is made of single-use plastics as used in packaging, but then plastics containing HBCDD are also mentioned where most of those are use din building insulation.
2. The ToC requires revision. The proposal might include separate ToC for different sectors since the barriers, enabling elements and drivers can differ substantially according to sector.
3. Barriers, enabling elements, drivers and assumptions need to be clearly explained and included in the ToC.
4. The proposal should consider the sequencing of activities, e.g., the need for the list of hazardous additives (outcome 1.1) before moving forward with demonstration projects (outcomes 2.1, 2.2 and 2.3).
5. The proposal is described as aligning with the Stockholm Convention on the reduction of POPs, but insufficient information is provided on how the POPs in collected plastic waste will be safely handled.

Note: number key points clearly and provide useful information or suggestions, including key literature where relevant. Completed screens should be no more than two or three pages in length.

*categories under review, subject to future revision

ANNEX: STAP'S SCREENING GUIDELINES

Project rationale

1. How well does the proposal explain the problem and issues to be addressed in the context of the **system** within which the problem sits and its drivers (e.g. population growth, economic development, climate change, sociocultural and political factors, and technological changes), including how the various components of the system interact?

2. Does the project indicate how **uncertain futures** could unfold (e.g. using simple **narratives)**, based on an understanding of the trends and interactions between the key elements of the system and its drivers?

3. Does the project describe the **baseline** problem and how it may evolve in the future in the absence of the project; and then identify the outcomes that the project seeks to achieve, how these outcomes will change the baseline, and what the key **barriers** and **enablers** are to achieving those outcomes?

4. Are the project's **objectives** well formulated and justified in relation to this system context? Is there a convincing explanation as to **why this particular project** has been selected in preference to other options, in the light of how the future may unfold?

5. How well does the **theory of change** provide an "explicit account of how and why the proposed interventions would achieve their intended outcomes and goal, based on outlining a set of key causal pathways arising from the activities and outputs of the interventions and the assumptions underlying these causal connections".

    - Does the project logic show how the project would ensure that expected outcomes are **enduring** and resilient to possible future changes identified in question 2 above, and to the effects of any conflicting policies (see question 9 below).
    - Is the theory of change grounded on a solid scientific foundation, and is it aligned with current scientific knowledge?
    - Does it explicitly consider how any necessary **institutional and behavioral** changes are to be achieved?
    - Does the theory of change diagram convincingly show the overall project logic, including causal pathways and outcomes?

6. Are the project **components** (interventions and activities) identified in the theory of change each described in sufficient detail to discern the main thrust and basis (including scientific) of the proposed solutions, how they address the problem, their justification as a robust solution, and the critical assumptions and risks to achieving them?

7. How likely is the project to generate global environmental benefits which would not have accrued without the GEF project (**additionality**)?

8. Does the project convincingly identify the relevant **stakeholders**, and their anticipated roles and responsibilities? is there an adequate explanation of how stakeholders will contribute to the development and implementation of the project, and how they will benefit from the project to ensure enduring global environmental benefits, e.g. through co-benefits?

9. Does the description adequately explain:

    - how the project will build on prior investments and complement current investments, both GEF and non-GEF,
    - how the project incorporates **lessons learned** from previous projects in the country and region, and more widely from projects addressing similar issues elsewhere; and
    - how country policies that are contradictory to the intended outcomes of the project (identified in section C) will be addressed (**policy coherence**)?

10. How adequate is the project's approach to generating, managing and exchanging **knowledge**, and how will lessons learned be captured for adaptive management and for the benefit of future projects?

11. **Innovation and transformation:**
    - If the project is intended to be **innovative:** to what degree is it innovative, how will this ambition be achieved, how will barriers and enablers be addressed, and how might scaling be achieved?
    - If the project is intended to be **transformative:** how well do the project's objectives contribute to transformative change, and are they sufficient to contribute to enduring, transformational change at a sufficient scale to deliver a step improvement in one or more GEBs? Is the proposed logic to achieve the goal credible, addressing necessary changes in institutions, social or cultural norms? Are barriers and enablers to scaling be addressed? And how will enduring scaling be achieved?

12. Have **risks** to the project design and implementation been identified appropriately in the risk table in section B, and have suitable mitigation measures been incorporated? (NB: risks to the

durability of project outcomes from future changes in drivers should have been reflected in the theory of change and in project design, not in this table.)