REVISED STAP SCREENING TEMPLATE, OCTOBER 2022

GEF ID	11437
Project title	Global Clean Hydrogen Program
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1. Summary of STAP's views of the project

This ambitious integrated program aims to support the expansion of the use of clean hydrogen in eight countries in the global south. The chosen countries are at different stages along the path towards green energy transition, which will be suitable for knowledge sharing and co-learning.

Considering the high initial investment costs of green hydrogen technology, it is good to see the proponents discuss the need for policy and financial mechanisms to attract private sector investments. The attractiveness to investors could be the high returns; the proponents need to consider including details on the potential returns to justify the project further.

If this program is implemented successfully, it will be instrumental in supporting the decarbonization of energy, transport, and industrial sectors in the target countries and providing an example for other countries in the global south. However, the proponents should discuss the different ways the future could play out under different drivers of change outside the project's control, such as climate change, price of other renewables, demand and markets for renewables, and investors' continued interest.

Also, the assumption in the results chain must be strengthened to acknowledge the challenges and uncertainties associated with green hydrogen.

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

X 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.

The proposal centers around establishing a global platform for green hydrogen, involving eight countries in the Global South. It effectively outlines the program's design, objectives, justification, and components. Proponents highlight various significant green hydrogen initiatives tied to the program, emphasizing the importance of demonstrating its complementarity rather than duplicating efforts. While all selected countries express ambitions to reduce greenhouse gas emissions in their energy sectors, there's a need for each nation to assess policy gaps and coherence during project implementation.

The document addresses financial investment challenges but needs more detailed explanations of the financial mechanisms to attract investments in the different targeted countries.

The program aims to partially displace reliance on fossil fuels and grey hydrogen production. It assumes that focusing on policy, technical readiness, pilot projects, financing, and knowledge management will enhance the adoption and scaling of green hydrogen technology. However, there's a need to consider actions promoting the acceptance of green hydrogen as an energy source amid competition with cheaper alternatives.

Proponents present a good theory of change, emphasizing the impact of increased uptake of green hydrogen technology. The proposed technology aligns with current scientific knowledge but faces challenges and uncertainties, such as technical and economic issues (dependent on renewable cost reduction) and sociocultural acceptance. The theory of change should acknowledge these uncertainties, including technical, economic, and sociocultural factors.

The assumptions in the theory of change need to be modified to align with the pathway to achieving the project objectives. Currently, only the assumption about regulatory bodies, private sector and other stakeholders' willingness, that the global and local markets for hydrogen will continue to grow and receptive to new hydrogen-based solutions, and that climate change and sustainability continue to be global priorities are accurate assumptions. Other assumptions like availability of sufficient infrastructure, technological capacity, financial resources, investments, and sustainable access to water and energy that do not negatively impact local communities are issues the project is designed to address; hence, they cannot be referred to as assumptions. Assumptions are "a belief accepted as true or taken for granted in defining the causal links in the causal pathway of a ToC – STAP theory of change primer". The project proponent needs to revisit the assumptions and correct them accordingly.

STAP commends the proponent for including indicators for measuring progress towards achieving the outputs and outcomes of each project component instead of focusing only on the GEBs expected from the project. Gender dimensions were also incorporated into the indicators. The proponent is encouraged to follow through with tracking and reporting on these.

The section on policy coherence misunderstood what policy coherence means. The section discussed how the project across the countries could support or contribute to each other. However, policy Coherence is defined by the OECD "as the systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies towards achieving the agreed objectives." So, in the context of a GEF project, policy coherence should involve analyzing policies in each country to see where there could be antagonistic policies that could derail project objectives and addressing them accordingly. This should be an essential aspect of the policy component of each child project. STAP recommends incorporating this analysis and actions to address policy incoherence into each child project, as appropriate. See STAP papers on policy coherence here and here for more guidance.

The greenhouse gas emission reductions (GEBs) are based on the assumption that 12% of the hydrogen supply will be grey hydrogen without a specific strategy. This baseline is contrasted with a scenario of 72% green hydrogen by 2050. The proposal explains how the expected GEB was calculated but could provide more details on the GEF methodology used. In particular, more clarity is needed on how the direct GEBs were calculated – was it based on pilots?

Potential co-benefits, such as employment creation, are acknowledged in various countries, which is good.

Regarding innovation, green hydrogen production is an innovation, and financial and institutional innovations are needed to overcome barriers to scaling green hydrogen. The project should be creative in developing innovative financing mechanisms and business models unique to each country as the project is implemented.

This could produce useful lessons for other countries and may help facilitate replication, scaling, and transformative change.

While the proponents suggest moderate climate risks, there's a call to recognize potentially higher political, environmental, and social risk ratings. Ignoring these risks due to low ratings may be shortsighted. As the program progresses, exploring social and post-decommissioning environmental risks becomes imperative.

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

STAP recommends addressing the points raised in Section 2, including the following:

1. Consider developing narratives of plausible futures in the different countries. These narratives should consider the potential drivers of change and their associated uncertainties in achieving the program's goal and use this to inform interventions in the target countries. See STAP's primer on future narratives for more guidance.
2. Following different plausible futures strengthens the theory of change causal pathways and assumptions to acknowledge the challenges and uncertainties associated with technical, economic, and sociocultural issues related to green hydrogen technology.
3. Address the points raised regarding the assumptions in the theory of change.
4. Consider undertaking a policy coherence and gap analysis to understand where conflicting policies can hinder the achievement of the expected outcomes and ensure these are addressed appropriately. See STAP's paper on policy coherence for more guidance.

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

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.)