

REVISED STAP SCREENING TEMPLATE

GEF ID	11072
Project title	Promoting zero-emission buildings in Brazil through climate technologies and policies
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1. Summary of STAP's views of the project

The “promoting zero-emission buildings in Brazil through climate technologies and policies” project aims to facilitate the decarbonization of the Brazilian building and construction sector. Attention will be focused on exploring solutions to promote developing and adopting innovative policies and technologies that result in whole-life-cycle emission reductions, efficiency gains, and increased resilience in new and existing buildings. The proposal assumes that taking a more coordinated and holistic approach to tackling the challenge should increase the adoption rate of key innovations.

Exemplary aspects of the proposal include good baseline information, identifying the barriers and drivers of change, a good systems-based description of the problem, a structural good theory of change, a focus on policy coherence, an acknowledgment of the need for a just transition, and gender equality in the sector, and recognition of co-benefits possible from the project.

The proposal will benefit from considering how the drivers of change outside the influence of the project could affect project outcomes and developing robust interventions that can withstand plausible futures. The use of the life cycle and circular economy approach need to be incorporated across the project components. Further, analyzing the country's challenges in policy implementation mechanisms and coherence will be helpful to ensure that the project does not result in new policies that will not be implemented. The calculations of the expected GHG emissions reduction from the project need more clarification, and the proponent needs to consider other GEBs possible from the project beyond GHG emissions reduction, including reducing harmful chemicals in the sector and minimizing the impacts of the industry on land and biodiversity.

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?

The proposal presents the challenges of achieving net-zero buildings in Brazil from a systems perspective highlighting the barriers and logically describing the drivers of increasing GHG emissions in buildings, including the increasing urban population that needs to be accommodated, the growing middle class with purchasing power, climate change trends increasing energy consumption, and the recent increase in non-renewable energy source in the country's energy mix.

While the noted system drivers are sound, the proposal did not adequately discuss how trends and interactions among these system drivers (outside the control of the project) and their uncertainties could unfold and affect

project objectives. For example, the project does not have control over the increasing urban population or changing climate affecting energy needs or the rising purchasing power of the middle class, but their trends can affect the durability of this project's outcomes and impacts. Hence it is essential to consider this before designing interventions. The project needs to consider some plausible narratives of how these drivers may unfold and test proposed interventions against these futures to ensure the interventions will work (i.e., are robust to future changes).

Good baseline information on the state of the building and construction sector in the country was provided in justifying the project. The GHG emissions from the target sector under the business-as-usual scenario will continue to increase.

The proposal presents a long list of government initiatives, including laws, policies, projects, programs, and financial mechanisms (p12-16), which should have been summarized and discussed in the context of how they influence the project's goal. The stakeholder section in the project rationale (p17) should also have been discussed in the context of their role and how they affect the system rather than just listing them.

The theory of change and the table on "aspired project transformation" provide a picture of what the project intends to achieve. Structurally, the theory of change is clear, and the intended causal pathway and underlying assumptions are well presented. It will be more complete if it includes the activities and outputs from the components. See the next comment on the content of the theory of change and project components.

On the project components:

- Lifecycle and circular economy approach need to be made more apparent in the proposal, especially in the project components. There is a need to provide a clear breakdown of the lifecycle of the types of building the project is targeting (raw material extraction; manufacturing; construction; operation and maintenance; demolition; and end-of-life disposal, reuse, or recycling) and show clearly how the project components will promote net-zero in each aspect of the building lifecycle. (see [Ali and Leonard, 2021](#); [Carra and Magdani, 2018](#); [ARUP, 2016](#); [Mackebach et al., 2020](#); [WBCSD, 2021](#)).
- The focus on upstream (policies, finance, etc.) and downstream (pilot demonstration) issues is good. The aim to explore solutions in the policy and regulatory environment is a plus for this project. And it is commendable that the project intends to enhance policy coherence beyond developing new policies and roadmaps. This is particularly important given the long list of policy frameworks listed already.
- There is a need to clarify what will be done in school buildings, just retrofitting or new constructions. This is because the last paragraph on p31 states that "the retrofitting and promotion of net-zero buildings in the schools will **include as related to the building's construction** (building materials and insulation), energy demand (distributed renewable energy, energy-efficient devices for operation, intelligent systems, operation modes, behavioral change training and education, maintenance) and the building's output (e.g., circular economy principles to reduce waste and energy leakage). Will this project undertake construction?"
- Using educational facilities in the eight bioclimatic zones to demonstrate zero-emission building is a good idea as it will increase the visibility of the project to the local communities and can serve as a teaching tool for current and future students. However, the proponent needs to ask if piloting in schools alone would generate sufficient data and motivation to catalyze actions in other types of buildings in the country. Will focusing on school buildings create the information to design financing mechanisms for other types of buildings or demonstrate new business models, such as energy as a service, relevant to other types of buildings? Given that school buildings represent a tiny percentage of present or future buildings in the country, and the project seeks to be transformative, it is essential to consider how to demonstrate feasibility across the different building types to generate knowledge and experiences needed for replication, scale up and to achieve transformation of the sector.
- A major bottleneck to change is the lack of or limited resources. It is positive that the project has a component that seeks to explore different financial tools and mechanisms for unlocking private finance to advance zero-emission building

The knowledge platform should bring visibility to project experiences, good practices, and lessons learned and help inform future ambitions and actions to strengthen stakeholder capacities in decarbonizing the building and construction sector. The knowledge products and gender-responsive communication should contribute to sustainable capacity-building and reinforce gender equality during and post-project implementation. Given that the project addresses issues of interest in other GEF investments, including sustainable cities and chemicals supply chains IPs, opportunities for synergy and cross-pollination should be explored.

The main GEBs described are emission reductions linked to zero-emitting buildings, but if well designed using a lifecycle (and circular economy) perspective, the project could generate other GEBs, related to eliminating the use of materials containing harmful chemicals in buildings and reducing the impact of buildings and construction on land and associated biodiversity. The proponent should explore these other GEBs, especially because not addressing the chemicals could mean locking in harmful chemicals in new and future buildings. Please see [UNEP 2021](#) for an analysis of potential chemicals of concern across the building life cycle.

Also, the project will achieve other local environmental and socioeconomic benefits, which the proponent appropriately noted in the proposal. These include reducing energy usage with consequence cost savings, enhancing gender equality, job creation, and increased resilience. These co-benefits should be accounted for as the project is implemented.

On the GHG GEB calculations, more clarity is needed on the estimation methodology and assumptions:

- For example, for the lifetime direct emissions reduction from pilots, what are the current GHG emissions from the schools, and what will the interventions reduce the emissions to in order to achieve the expected emission reduction?
- For the lifetime indirect emissions, more clarity is needed to ensure no double counting. If the policy interventions (strategy, regulatory and financial facilities) already addressed emissions of existing and future buildings up to 2050, as asserted in the assumptions for the calculation of the lifetime direct emission reductions from regulatory and financial facilities, which buildings are the lifetime indirect emissions reductions from capacity building and innovation addressing?

3. Specific points to be addressed, and suggestions

Based on the comments in Section 2 above, STAP recommends the following to strengthen the project:

1. Develop a narrative of plausible futures that considers the potential effects drivers of change and their associated uncertainties on achieving the project's goal and use this to inform intervention options. See STAP's [primer on future narratives](#) for more guidance.
2. Reflect more on why the current policy mix is resulting in slow progress, and undertake policy gap and coherence analyses to determine where the current policies need strengthening and clarity to enable their successful implementation. See [STAP's paper on policy coherence](#) for more guidance.
3. Appropriately incorporate the life cycle and circular economy approach into each project component to ensure that the interventions address all aspects of the building life cycle (i.e., raw material extraction; manufacturing; construction; operation and maintenance; demolition; and end-of-life disposal, reuse, or recycling) to facilitate net-zero.
4. Clarify if the project's piloting aspects will involve constructing new buildings or only focusing on retrofitting.
5. Consider how to ensure that the pilot component can generate the needed catalyst for replication, scale-up, and transformation of the sector as the project indicated as its objective. In particular, consider whether the school buildings pilot is enough catalyst to promote action in other types of buildings in the country.
6. Explore how to ensure that the project achieves the multiple benefits possible from the project by appropriately using the life cycle and circular economy approach in the design of each intervention.

7. Clarify how the GHG GEB was calculated, including the scientific basis and underlying assumptions. Also, ensure there is no double counting in the GHG emission reduction calculation.
8. Make provisions for measuring, tracking, and reporting the local environmental and socioeconomic achievable through the project. Please see STAP's [paper on incorporating co-benefits in GEF's investments](#) for guidance.

*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.)