

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 08, 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:	9561
PROJECT DURATION:	5
COUNTRIES:	Guinea-Bissau
PROJECT TITLE:	Promoting Better Access to Modern Energy Services through Sustainable Mini-grids and Low-carbon Bioenergy Technologies Among Guinea-Bissau's Forest-dependent Communities
GEF AGENCIES:	UNDP
OTHER EXECUTING PARTNERS:	Direction General of Environment/Secretariat of State of Environment, Direction General of Energy/Ministry of Energy, National Institute for Research and Applied Technology (INITA)
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):
Concur

III. Further guidance from STAP

1. The aim is to promote low-carbon technologies in Guinea Bissau including through renewable energy-based mini-grids and bioenergy systems using efficient cookstoves. Four pilot mini-grids (totalling around 2 MW capacity) are envisaged under a public/private partnership business model supported by around USD 6.4 M co-finance through the Government's development programme as funded by aid donors.
2. The project will build on an existing UNIDO project on renewable electricity, and will also benefit from experiences gained from other UNDP GEF project investments currently under progress in West Africa.
3. Modern energy access is low in the country but there are good hydro and solar resources, and the Government has a programme in place to improve the electricity grid and energy infrastructure. Wind resources have not been fully assessed, but given the location of the island nation, it could also be a useful resource in the more remote areas, as can solar systems. Bioenergy has potential if deforestation can be avoided and charcoal production kilns and cook stoves can become more efficient to reduce demand for fuelwood and charcoal.
4. The country, therefore, has significant renewable energy potential. Hence it is recommended that this project should explore this possibility in detail to determine the most appropriate renewable energy systems that can be implemented cost-effectively in the near term to meet the project objectives in line with the country's priorities. Technologies with potential for long-term implementation should also be considered and recommended within the project.

5. Since local technical, operational and management expertise is a significant constraint for both mini-grids and bioenergy systems, capacity building is paramount. Access to capital is also a constraint, but political instability is perhaps a more significant deterrent to private sector investment. The project should therefore proactively consider how best to ensure private sector engagement/investment from the onset.

6. The project aims to target the charcoal sector to reduce pressure on deforestation. The recent FAO report on "Greening the charcoal value chain to mitigate climate change and improve local livelihoods" (<http://www.fao.org/3/a-i6935e.pdf>) could be a useful resource when developing the project further and is recommended.

7. The project document does not define the type and design of cookstove that is intended to be deployed. It is, however, essential to consider the effectiveness of clean cookstoves as a solution for climate change and air pollution challenges. Recent scientific studies have shown that many stoves do not deliver on the promised air pollution and climate benefits. For example, an evaluation of stove replacement program in India found that the proportion of black carbon emitted from intervention stoves, approved under the Clean Development Mechanism (CDM), was higher than emissions from the traditional stoves being replaced (see Aung et al., 2016: <http://pubs.acs.org/doi/abs/10.1021/acs.est.5b06208>). Three other studies also show similar results (see: Wathore et al. 2017: <http://pubs.acs.org/doi/abs/10.1021/acs.est.6b05557>; Mortimer et al. 2016: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)32507-7/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)32507-7/abstract) and Tielsch et al., 2016: [http://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(16\)30024-9/abstract](http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(16)30024-9/abstract)). Hence before selection and deployment, the cookstoves for this project should be rigorously tested for effectiveness in delivering the expected climate and health benefits. Furthermore, the stove should be a type that is easy to use, both technically and practically. Alternatives to solid fuel cookstoves should also be sought where possible, such as biogas stoves (Anderman et al., 2015: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4584993/> and https://cleancookstoves.org/binary-data/TECHNOLOGY_FUELS/document/000/000/6-1.pdf) or solar cookstoves (<http://www.nature.com/news/sustainability-clean-cooking-empowers-women-1.17562>)

8. Around 190 kt CO₂-eq of greenhouse gases were estimated to be mitigated as a result of renewable electricity generation, improved kilns for charcoal production, and the uptake of clean cookstoves. Total investment equates to over USD 60/t CO₂-eq avoided. It is however not clear if this estimate is mainly based on avoided deforestation or if it includes the expected black carbon emissions avoided from improved kilns and cookstoves (UNEP/WMO, 2011: <https://wedocs.unep.org/rest/bitstreams/12809/retrieve>). If not, STAP recommends that this should be included in the calculation of the climate benefits. See STAP advisory document to the GEF on black carbon: <http://www.stapgef.org/sites/default/files/stap/wp-content/uploads/2015/10/Black-Carbon-Web-Single.pdf>

<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: <ul style="list-style-type: none"> (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. <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>
3. Major issues to be considered during	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:

project design	<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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