

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: September 21, 2015

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Consultant(s):

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

FULL SIZE PROJECT GEF TRUST FUND

GEF PROJECT ID: 9225

PROJECT DURATION : 5

COUNTRIES : Mozambique

PROJECT TITLE: Towards Sustainable Energy for All in Mozambique: Promoting Market-Based Dissemination of Integrated Renewable Energy Systems for Productive Activities in Rural Areas

GEF AGENCIES: UNIDO

OTHER EXECUTING PARTNERS: Ministry of Land, Environment and Rural Development (MITADER), Ministry of Agriculture and Food Security, Ministry of Energy and Mines Resources, Environment Fund (FUNAB), Energy Fund (FUNAE), Mozambique National Cleaner Production Center (MNCPO).

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

The aim of this project is to develop a policy framework to encourage renewable energy deployment in rural areas, capacity building for government officials and financiers, and 5 demonstration projects and dissemination. In addition it will establish a financial mechanism for 30 solar water pumping systems and 30 biogas plants for agri-food processing wastes. (Note, Figure 1 data does not match these numbers as shown in sections 3.1 and 3.2 of Table B).

Hydro power plants are operating but transmission and distribution is constrained so only 18% of the population are grid-connected and a further 11% off-grid – mainly solar PV but with poor maintenance services. Traditional biomass dominates the energy supply and costly diesel pumping and diesel power generation is common in remote areas. The project aims to overcome policy, technology, operation and financial benefits to achieve greater cost-effective RE project deployment.

The baseline for biogas is that most potential organic feedstocks from agri-food plants are dumped. Additional biomass resources, such as animal manures, arise on farms, but how they might be best utilised in a central biogas plant (after collection and sale) needs analysis. Will the biogas plants be manufactured locally or imported? Useful state-of-the-art information can be found at Task 37 of IEA Bioenergy <http://www.ieabioenergy.com/task/energy-from-biogas/>

Only around 1 MW of solar PV has been installed to date in Mozambique. As agricultural production is projected to increase, energy demand in rural areas will grow. For food processing this may include demand for heat (for drying, sterilising, bulk cooking etc.) so it is good to see the useful heat from biogas-fuelled engines for power generation has at least been recognised (bottom of page 9). Use of the effluent after digestion for soil conditioning and nutrient recycling should be integrated, and its monetary value, method of transport to the fields, and distribution need consideration.

Several initiatives to expand RE supply exist, both through expansion of the grid and off-grid generation systems but these have been slow, so a market-based approach to attract private investment is envisaged.

Component 2 refers to capacity building activities for government officials, finance institutions and other private stakeholders. Though it will presumably be specific to conditions in Mozambique, this type of training

has been done throughout the developing world by donors such as USAID – see for example the Energy Sector Technical Leadership task run by Engility Corp. in the US (<http://www.engilitycorp.com/service-offerings/specialized-technical-consulting/international-development/energy-sector-technical-leadership/>). Organizers should seek to utilize existing information and expertise in order to maximize cost and efficiency. This is also a good opportunity to foster South-South exchange (discussed as one of the ways in which this project is innovative) since many countries face similar challenges (e.g. lack of access to energy in rural areas, reliance on fuelwood, charcoal production, diesel generators, etc.).

The demonstration projects for medium scale installations (50-500kW) appear a good approach to encourage greater deployment over time, though it is not clear what criteria will be used to select the locations. It is good to see that gender issues will be included. For solar water pumping for irrigation, locations need both a good solar resource and proximity to crops suitable for increasing productivity from irrigation. Climate change may increase water shortages in this region, so gaining greater experience with irrigation systems could be critical in the future.

It is not clear why micro-hydro or wind generations systems are not included (though the local wind resource may be insufficient).

Costs of technologies are provided but sources not referenced. Are these based on delivered costs into the rural areas? The financing method through 20% performance related grants appears sound. The current low oil price may impact on the cost-effectiveness of the projects, though the price of diesel delivered to rural areas is likely to still be relatively high (no retail price given).

Direct and consequential (no longer termed "indirect") emission reductions of 4.4 Mt CO₂-eq from diesel fuel substitution, avoidance of deforestation for fuelwood, the avoidance of methane from organic waste decomposition, and based on a replication factor of 15, appears sound.

As is mentioned in Section 1.5 on GEBs, when implemented this project will also positively impact forests, biodiversity, water quality, reduced waste, and soil fertility. As these are all issues that fall under GEF's mandate, the benefits should not only be quantified under the PPG phase as stated, but a concerted effort should be made to integrate this project with others in Mozambique related to biodiversity, etc. – this could in fact comprise one of the criteria for selection of location for pilot projects.

How does this project relate to GEF Project 1158 – administered by the World Bank on energy reform and access?

Of possible value for project partners is an FAO report that covered renewable energy in the agri-food industry Energy-smart food for people and climate (2011). <http://www.fao.org/docrep/014/i2454e/i2454e00.pdf>

In addition, the partners may like to learn more about the GEF Integrated Approach Pilot on Food Security in sub-Saharan Africa; https://www.thegef.org/gef/IAP_Food-Security and <http://ifad-un.blogspot.co.nz/2015/06/ifad-lead-agency-on-new-gef-programme.html>

<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: (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>
<p>3. Major issues to be considered during project design</p>	<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>