

# 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: April 09, 2014

Screener: Virginia Gorsevski

Panel member validation by: Ralph E. Sims  
Consultant(s):

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

**FULL SIZE PROJECT GEF TRUST FUND**

**GEF PROJECT ID:** 5742

**PROJECT DURATION :** 4

**COUNTRIES :** Lesotho

**PROJECT TITLE:** Development of Cornerstone Public Policies and Institutional Capacities to Accelerate Sustainable Energy for All (SE4A) Progress

**GEF AGENCIES:** UNDP

**OTHER EXECUTING PARTNERS:** Ministry of Energy, Meteorology and Water Affairs (MEMWA) – Department of Energy (DoE) - lead, Ministry of Development Planning (MDP), Bureau of Statistics (BoS), Lesotho Electricity and Water Authority (LEWA), Ministry of Tourism, Environment and Culture (MTEC), Department of Standards and Quality Assurance (DSQA) of the Ministry of Trade and Industry, Cooperatives and Marketing (MTICM), National University of Lesotho

**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):  
**Consent**

### III. Further guidance from STAP

1. STAP welcomes this well presented proposal.

2. The aim of the project is to support policies and also catalyze investment in sustainable energy projects in rural areas. Energy access is essential for economic growth and using renewable energy systems to achieve this without increasing greenhouse gas (GHG) emissions is commendable. Providing data from the energy survey will provide a baseline but it will no doubt be challenging to achieve useful levels of accuracy. It is not clear who will undertake the energy survey and who will be interviewed. If it can be achieved, the database will be valuable when developing strategies for SE4A. The majority of the funding sought is for establishing rural energy demonstration systems in 60 villages.

3. The criteria to be used to obtain the short list of 100 villages and then to narrow this down to the 60 final ones seems appropriate. Having a geographic spread throughout the country is key to ensure replication takes place. Given Lesotho's varied terrain as well as the country's high vulnerability to climate change, severe land degradation programs and reliance on fuelwood for rural energy use, it might make sense to incorporate a spatial analysis into the baseline energy data collection that incorporates land cover and land use that can be used to pinpoint areas of high or low suitability for future proposed renewable energy (RE) interventions, particularly wind, small hydro and bioenergy. Current climate models predict declining crop yields due to loss of arable lands, water shortages, higher evaporation rates due to increased temperatures. (Saha, T.K. , 2011. Impact of climate change on agricultural production in Lesotho: A case study. African Crop Science Conference Proceedings (10): 273 – 277). Clearly, the water, energy, land/agriculture nexus is important and there is an opportunity to incorporate all of these features into any future data collection effort – particularly if the goal is to eventually identify sites for RE systems.

4. There is considerable experience of developing mini-electricity grids in many countries and this could be useful to examine. But the design of each differs with the renewable energy resources available and the demand profile. This will need careful attention for each proposed village system. Tools are already available such as HOMER(1) or RETSCREEN(2) models used for assessing optimum systems of renewables. It

seems small and micro-hydro and solar have the greatest resource potentials, though given the high susceptibility of Lesotho to the impacts of climate change, the latter may incur less overall risk. Wind and bioenergy power should also not be ignored.

5. The models can be used to undertake cost assessments in order to optimise the systems. The main problem will be to determine the load capacity and profile of a community, and the peak load to be met by the system. Linking with energy efficient electric appliances such as LED lighting is critical. The other issue is to anticipate how to build in the need for increasing generation capacity in the future as demand for more appliances increases along with economic growth.

6. The barriers and risks are well documented, the main one being to develop human capacity to ensure that maintenance and servicing can maximise the operating life of the energy systems. It is good this is being addressed.

7. The present projects outlined have been useful to establish the baseline. The aim should be to ensure this GEF project builds on these studies where feasible and as outlined in Table 1.

8. The assessment of the GHG emission avoidance appears to be robust given the uncertainties of land use and avoided deforestation.

(1)[http://apps1.eere.energy.gov/buildings/tools\\_directory/software.cfm/ID=425/pagename\\_submenu=renewable\\_energy/pagename\\_menu=whole\\_building\\_analysis/pagename=subjects](http://apps1.eere.energy.gov/buildings/tools_directory/software.cfm/ID=425/pagename_submenu=renewable_energy/pagename_menu=whole_building_analysis/pagename=subjects)

(2)<http://www.retscreen.net/>

<i>STAP advisory response</i>	<i>Brief explanation of advisory response and action proposed</i>
<b>1. Consent</b>	<p>STAP acknowledges that on scientific or technical grounds the concept has merit. However, STAP may state its views on the concept emphasizing any issues where the project could be improved.</p> <p>Follow up: The GEF Agency is invited to approach STAP for advice during the development of the project prior to submission of the final document for CEO endorsement.</p>
<b>2. Minor revision required.</b>	<p>STAP has identified specific scientific or technical challenges, omissions or opportunities that should be addressed by the project proponents during project development.</p> <p>Follow up: One or more options are open to STAP and the GEF Agency:            (i) GEF Agency should discuss the issues with STAP to clarify them and possible solutions.            (ii) In its request for CEO endorsement, the GEF Agency will report on actions taken in response to STAP's recommended actions.</p>
<b>3. Major revision required</b>	<p>STAP has identified significant scientific or technical challenges or omissions in the PIF and recommends significant improvements to project design.</p> <p>Follow-up:            (i) The Agency should request that the project undergo a STAP review prior to CEO endorsement, at a point in time when the particular scientific or technical issue is sufficiently developed to be reviewed, or as agreed between the Agency and STAP.            (ii) In its request for CEO endorsement, the Agency will report on actions taken in response to STAP concerns.</p>