

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: October 07, 2013

Screeners: Nijavalli H. Ravindranath

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: 5501

PROJECT DURATION : 5

COUNTRIES : Ethiopia

PROJECT TITLE: Promoting Sustainable Rural Energy Technologies (RETs) for Household and Productive Uses

GEF AGENCIES: UNDP

OTHER EXECUTING PARTNERS: Federal level:

if~ Environment Protection Authority (EPA), Ministry of Water and Energy, Ethiopian Rural Energy Development and Promotion Centre

Regional level:

if~ Dire Dawa Administration, Somali, Harari, Oromia and Amhara National Regional States, Environmental and Water and Energy Bureaus, and Addis Ababa University

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): **Minor revision required**

III. Further guidance from STAP

The project aims to promote sustainable rural energy technologies (RETs) for household and productive use in Ethiopia. The focus of the project is on promoting RETs for rural areas and aims to develop a holistic and market based approach. STAP has the following comments and suggestions which could be addressed during next phase of the project.

1. The meaning of the holistic approach is not clear. A holistic approach should consider all the energy needs of rural areas and come up with strategies to sustainably meet the energy needs, promote sustainable development and reduce GHG emissions. The project however focuses only on two renewable energy technologies.
2. The project has rightly identified the barriers to RETs such as low return on investment, high upfront cost, high risk, lack of information and capacity. All these barriers have to be adequately addressed in the project, which is not the case in the PIF.
3. One of the major interventions proposed is regulatory and legal framework for rural RETs. It's not clear how a legal or regulatory framework would promote efficient cookstoves or biogas among the rural poor. To promote RE among the rural poor there is a need to address other barriers than regulatory or legal framework based interventions. Legal and regulatory framework components are routinely introduced into all GEF projects.
4. The rationale for focusing only on cookstoves and solar technologies is not clear. Why not biogas for cooking or small hydro, or biomass gasifiers for decentralized power generation as is common in India?
5. Which of the energy services (below) will be targeted in this project? Which RE technologies will be considered to meet the energy needs in the project?
 - a. Services: Cooking, lighting, appliances, water pumping, agro-processing, small scale industries, local transport.

- b. Technologies: efficient cookstoves, wind turbines, solar PV, solar water heaters, biogas, biomass gasifiers, small hydro systems, biofuels.
6. STAP recommends a systematic assessment of the rural energy needs for different activities and to consider all the RETs available to meet each of the service or needs for assessment. Based on a techno-economic and mitigation potential assessment, develop an energy service and RET matrix.
7. The scale or capacity of the RET based power generation systems: Does the project focus only for meeting the local village level power needs through decentralized and off grid systems or does the project also aim at grid connected decentralized RET based power systems?
8. Is deforestation directly linked to firewood consumption? There is a need to identify the drivers of deforestation, to identify to what extent net CO2 emissions are caused by fuel-wood consumption from forests.
9. According to the PIF, 95% of national electricity generated is from hydro-power. The baseline scenario is already dominated by hydro-power (for electricity) and biomass (for heat). Thus there may be limited scope for GHG emission reductions other than saving deforestation for fuelwood by the rural energy sector. It is suggested to develop baseline GHG emissions from rural areas to enable assessments of net GHG reduction potential.
10. The high investment cost is likely to be a serious barrier for the poor to invest in RETs. This needs to be adequately addressed.
11. The PIF states that energy needs of productive uses will be met. However there are no details about which rural productive activities will be targeted. Cookstoves and solar systems as described in the PIF are unlikely to lead to meeting the energy needs of agro-processing or rural industrial needs.
12. Introducing regulations to encourage manufacture of more efficient cookstove and "small- scale solar technologies" is commendable, but how will enforcement actually be carried out? It is presumed "small-scale solar technologies" are for solar water heating or solar drying (not mentioned in the proposal) as solar PV panels are imported.
13. Many improved cook stove programs exist (as are identified). It is hoped these have been fully evaluated and outcomes will be carefully applied to local circumstances prior to instigating yet another program in Ethiopia. De-risking, market-enabling and financing are all good goals but local cultures and conditions are critical.
14. Will an assessment of local renewable energy resources be made, or has one already been completed? Without knowing annual solar radiation levels; seasonal river and stream flow variations; mean annual wind speeds and best locations; biomass available without deforesting or excessively reducing soil nutrients (eg from using crop residues), it is not possible to assess the costs and potential of a RET project with any degree of accuracy. Furthermore, if much of the hydro-power "is yet to be developed", surely this technology should be included here in the mix. Micro-systems can be highly efficient at the local village scale.
15. The problems of project financing through the RE Fund in the past decade are evident, and the aim to support this is a good approach – but it needs careful assessments made to find out exactly why it has failed to deliver. If the reasons can be clearly identified (e.g. wrong technologies for the sites, unaffordable, corruption, insufficient capacity etc.) and lessons can be learned, then this GEF project would stand a far greater chance of success.
16. Kenya, Tanzania, and no doubt other several East African countries have developed programs to support modern biomass and other renewables. Some form of international collaboration could be a useful component of this project. (For example, Kenya and Tanzania exchanged ideas (also with India and Sri Lanka) through the PISCES programme (for example, http://www.pisc.es.or.ke/pubs/pdfs/04007_ECO_Pisces_Bioenergy_Market.pdf) administered through the African Centre for Technology Studies, Nairobi.

<i>STAP advisory response</i>	<i>Brief explanation of advisory response and action proposed</i>
1. Consent	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. 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.
2. Minor	STAP has identified specific scientific or technical challenges, omissions or opportunities that should be

<p>revision required.</p>	<p>addressed by the project proponents during project development.</p> <p>Follow up: One or more options are open to STAP and the GEF Agency:</p> <p>(i) GEF Agency should discuss the issues with STAP to clarify them and possible solutions.</p> <p>(ii) In its request for CEO endorsement, the GEF Agency will report on actions taken in response to STAP's recommended actions.</p>
<p>3. Major revision required</p>	<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:</p> <p>(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.</p> <p>(ii) In its request for CEO endorsement, the Agency will report on actions taken in response to STAP concerns.</p>