

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: May 08, 2013

Screener: Lev Neretin

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: 5375

PROJECT DURATION : 4

COUNTRIES : Nigeria

PROJECT TITLE: Scaling up Small Hydro Power (SHP) in Nigeria

GEF AGENCIES: UNIDO

OTHER EXECUTING PARTNERS: Federal Ministry of Environment (FME), Federal Ministry of Power (FMP), Federal Ministry of Water Resources (FMWR), Energy Commission of Nigeria (ECN), State Governments

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

1. This is a good project following on from UNIDO's investments in several small hydro power projects with the aim to develop more small hydro projects in Nigeria. GEF funding is to strengthen the support required and help remove barriers to greater hydro deployment. Encouraging local fabrication of turbines is commendable.

2. it is not clear why "pilot" plants are to be built for such a mature technology. Surely the aim should just be to deploy commercial hydro power as widely as possible. They do not need piloting. The locations are not clear for their ease of access to the grid. Whether mini-grids or connection to the main grid will be needed, has this been costed in? Who will build the lines? It says "selected State governments" will invest - but how are these selected - or are they simply those states where the hydro sites are located? Have they all agreed to be partners? And will the power only be used in these states or be transmitted to other states? Have transmission and distribution losses been included in the cost/benefit evaluations? All these questions have to be considered during project preparation.

3. A more relevant question is who will retail the power generated? Is there a power purchase agreement to be negotiated? if so between whom? And can local rural communities afford to buy the power - and the various appliances?

4. There is a need for national assessment of appropriate sites for SHP. Environmental impacts of the "water storage facilities" - i.e. dams - are not included - nor the risks. For example, is there a risk of methane production from flooding vegetation? Any risks to local rural communities, for example possibly being displaced from their land? World Bank IEG Assessment "Adapting to Climate Change: Assessing the World Bank Group Experience Phase III" (http://ieg.worldbankgroup.org/content/dam/ieg/climate_change3/cc3_full_eval.pdf) acknowledges that there a range of factors project proponents should consider when making hydropower investment climate-resilient. These include safety provisions, environmental impacts, profitability and investment decisions, and various design factors. Proponents of this project are advised to explore the different approaches and lessons learned for other World Bank projects and elsewhere to approach climate risks of project investments in a systemic way.

5. Who will be the system operator for the various hydropower stations to manage the varying loads, especially if the new hydro power is to be integrated into an existing power supply system?

6. There is a need for detailed GHG assessment for the development of SHP in the medium-to long-term. Avoiding 239,673 t CO₂ (and subsequently 958,694 t) sounds OK but how was this calculated? What GHG factor was used for diesel avoided? (And is it really that accurate - to the nearest tonne!).

7. STAP recommends project proponents consider wider regional implications for technology transfer of SHP throughout West Africa. Co-operation with the ECOWAS Regional Center for Renewable Energy and Energy Efficiency could be made more strategic to support SHP technology transfer including capacity building and training, IPP, policy support and equipment transfer/purchase.

8. The PIF is silent about the existing overall policy framework supporting RET including SHP in Nigeria. The government is considering new measures to support the RE sector, including a moratorium on import duties for renewable energy technologies, further tax credits, capital incentives and preferential loan opportunities, as well as feed-in-tariffs for solar energy, wind power and small-hydro. How will the project be supported by this larger RE framework? Without such a framework, project impacts will be short-lived.

9. The PIF is silent about specific business models that could be used in installing, operating and maintaining SHP plants. During the PPG stage such models should be designed. Some examples of policies and approaches are presented in REN21 Renewables Global Futures Report 2012 (<http://www.ren21.net/>) and in "Policy, Finance and Implementation" Chapter 11 of the IPCC Special Report on Renewable Energy (<http://srren.ipcc-wg3.de/report>).

<i>STAP advisory response</i>	<i>Brief explanation of advisory response and action proposed</i>
1. Consent	<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>
2. Minor revision required.	<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:</p> <ul style="list-style-type: none"> (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.
3. Major revision required	<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> <ul style="list-style-type: none"> (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.