Scientific and Technical Advisory Panel

The Scientific and Technical Advisory Panel, administered by UNEP, advises the Global Environment Facility

STAP Scientific and Technical screening of the Project Identification Form (PIF)

Date of screening: 01st October 2009 Screener: Lev Neretin

Panel member validation by: N.H. Ravindranath

I. PIF Information

GEFSEC PROJECT ID: 4042
COUNTRY: CAMBODIA
PROJECT TITLE: CLIMATE CHANGE RELATED TECHNOLOGY TRANSFER FOR CAMBODIA: USING AGRICULTURAL RESIDUE BIOMASS FOR SUSTAINABLE ENERGY SOLUTIONS
GEF AGENCY: UNIDO
OTHER EXECUTING PARTNERS: NATIONAL CLEANER PRODUCTION OFFICE-CAMBODIA (NCPO-C) HOSTED BY THE MINISTRY OF INDUSTRY, MINES & ENERGY (MIME))
GEF FOCAL AREA: CLIMATE CHANGE
GEF-4 STRATEGIC PROGRAM: CC-SP4
NAME OF PARENT PROGRAM/UMBRELLA PROJECT: TT-PILOT (GEF-4)

II. STAP Advisory Response *(see table below for explanation)*

1. Based on this PIF screening, STAP's advisory response to the GEF Secretariat and GEF Agency(ies): **Consent**

III. Further guidance from STAP

This bioenergy technology transfer project is very a comprehensive proposal. It aims at covering all aspects; technology needs assessment, biomass supply, infrastructure requirement, human capacity needs, techno-economic assessment, preparation of bankable proposals, technology installation and operation, capacity building, dissemination, removal financing barriers and policy development. It may be too comprehensive to achieve all objectives. Many questions are left undecided; the biomass feedstock, capacity of the power system, the technology (power or heat or CHP), source of biomass (rice mills or other sources such as plantations or crop residues). A good understanding of such issues is necessary to plan the project activities.
STAP welcomes the proposed project framework promoting biomass-fuelled power and steam generation technologies in Cambodia. The choice of circulating fluidized bed combustion boilers (CFBC) is justifiable because these technologies are diffusing rapidly in Asia since 1990s. The attractiveness of the technology is primarily because of its fuel flexibility, however, the composition of burned fuels impacts significantly on the performance and a number of technological risks such as bed agglomeration in fluidized bed boilers, the rate of boiler fouling, deposit formation, slagging, and superheater corrosion have to be taken into account. This is particularly relevant in the context of using rice husk, because this is a seasonal fuel and there will be a need for co-firing with fossil or biomass fuels. In the context of CFBC promotion, specific drivers such as fuel availability (quantity and quality), market demand, innovation spill over effects and competing technologies have to be explored at the project preparation phase. Project proponents may find useful lessons learned in the diffusion of fluidized bed combustion technologies in different world regions useful in the context of this project (Koornneef *et al.* 2007. *Progr Energy Combustion Sci.* 33: 19-55).

The decision on biomass feedstock is very necessary upfront, since it determines the biomass gasifier design. Demand for power generated also needs to be assessed. Technical features of biomass feedstock is critical for the selection of design; bulk density of feedstock, moisture content of feedstock, opportunity cost of feedstock, price of fuel, sustainability feedstock supply, etc.

STAP advisory response	*Brief explanation of advisory response and action proposed*
1. Consent	STAP acknowledges that on scientific/technical grounds the concept has merit. However, STAP may state its views on the concept emphasising any issues that could be improved and the proponent is invited to approach STAP for advice at any time during the development of the project brief prior to submission for CEO endorsement.

2. Minor revision required.	STAP has identified specific scientific/technical suggestions or opportunities that should be discussed with the proponent as early as possible during development of the project brief. One or more options that remain open to STAP include: (i) Opening a dialogue between STAP and the proponent to clarify issues (ii) Setting a review point during early stage project development and agreeing terms of reference for an independent expert to be appointed to conduct this review 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.
3. Major revision required	STAP proposes significant improvements or has concerns on the grounds of specified major scientific/technical omissions in the concept. If STAP provides this advisory response, a full explanation would also be provided. Normally, a STAP approved review will be mandatory prior to submission of the project brief for CEO endorsement. 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.