

# 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: 30th November 2008

Screener: Lev Neretin

Panel member validation by: N.H. Ravindranath

### I. PIF Information

Full size project GEF Trust Fund

GEFSEC PROJECT ID: 3554

GEF AGENCY PROJECT ID: 4044

COUNTRY(IES): INDIA

PROJECT TITLE: IMPROVING ENERGY EFFICIENCY IN THE INDIAN RAILWAYS SYSTEM

GEF AGENCY(IES): UNDP

OTHER EXECUTING PARTNERS: INDIAN RAILWAYS (IR); MINISTRY OF RAILWAYS

GEF FOCAL AREAS: CLIMATE CHANGE

GEF-4 STRATEGIC PROGRAM(S): CC-SP2

NAME OF PARENT PROGRAM/ UMBRELLA PROJECT: PROGRAMMATIC FRAMEWORK FOR EE IN INDIA

### 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

STAP welcomes this proposal aimed at improving energy efficiency (EE) in traction and non-traction sub-sectors of Indian Railways. The project aims at removing barriers for implementation of the energy efficiency program proposed by the *Indian Railways*. Project framework is well balanced by including institution and capacity building, development and piloting of EE technologies and measures and includes knowledge management component. STAP notes that the project aims to identifying the International best practices with respect to Energy Efficient Technologies and for incorporating an activity to carry out Cost-benefit analysis for priority technologies/measures. A detailed listing of planned Components and Activities and linkage to the specific barriers would help project implementation. Further, STAP makes the following recommendations for consideration during project development;

**Scientific Criteria for Technological Interventions:** There are a number of potential technological interventions available on the market, some of which are referred to in the PIF, such as; *mass reduction, aerodynamics and friction modifications, space utilization, reduction of conversion losses, introduction of direct injection technologies in diesel combustion engines, regenerative breaking, high-speed passenger trains* and etc. It is desirable to conduct an analysis using scientific criteria, based on *Energy Conservation Potential, Benefit-Cost Analysis, Mitigation Potential (tCO<sub>2</sub>), Cost-Effectiveness (\$/tCO<sub>2</sub>)*, etc., to identify and rank the technological interventions.

- I. **Barrier Analysis:** The project has identified three barriers namely; *weak institutional arrangement, lack of in-house technical skill and lack of economic incentives for promoting energy efficiency* in Railways. There could be other barriers as well. Thus, it is suggested to carry out a scientific analysis of barriers to *rank and prioritise the barriers, to enable effective targeting* of the measures to overcome the barriers.
- II. **Risks and Mitigation Measures:** A detailed analysis of the risks and potential mitigation measures would enable the project authorities to be better prepared to overcome the risks. The financial / incremental cost risks need to be addressed. The risks involved in scaling up energy efficiency programme beyond the pilot project needs to be assessed.

<i>STAP advisory response</i>	<i>Brief explanation of advisory response and action proposed</i>
<b>1. Consent</b>	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.
<b>2. Minor revision required.</b>	<p>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:</p> <ul style="list-style-type: none"> <li>(i) Opening a dialogue between STAP and the proponent to clarify issues</li> <li>(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</li> </ul> <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>
<b>3. Major revision required</b>	<p>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.</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>