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: March 02, 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: 5199
PROJECT DURATION : 3
COUNTRIES : Colombia
PROJECT TITLE: Demonstration and Assessment of Battery-electric Vehicles for Mass Transit in Colombia
GEF AGENCIES: IADB
OTHER EXECUTING PARTNERS: C40 Cities Climate Leadership Group in partnership with the Clinton Climate Initiative (C40-CCI)

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

Electrifying the world-renowned mass transit system of Bogota is the aim of this project. A fleet of 8 electric articulated buses (costing around USD 800k each) is planned.

1. Although there may not be any electric articulated buses in operation anywhere, many standard electric buses exist (eg Shenzhen, Seoul, Adelaide) and the design principles are similar. Not clear how BYD Company Limited can provide $20M in "in-kind" development costs specifically for this project. Would they not wish to sell their technology - even if a prototype - to a wide range of customers?

2. Each bus covers 70,000km /yr which is 200km if operating every day of the year. Therefore the range needed when designing an electric bus, assuming overnight recharging, <365 days a year running, and avoiding "range anxiety", should therefore be around 300km. Would proposed in the project bus batteries be able to assure such battery range?

3. The emissions factor for the hydro-dominated Columbian electricity system is obviously low (110g CO2-eq / kWh) so electric vehicles as a means of mitigation should be encouraged. Uncertainty over battery life is not discussed- with the assumption they will last the projected 12 year life of the bus. This is unlikely and a replacement set will probably be required. Project proponents are advised to consider building capacity for battery disposal and recycling.

4. The reliability of the Columbian power supply system is unknown. What is the back-up should there be an outage and no mains power is available for recharging the buses? Such risk should be considered and mitigation strategy proposed.

5. PIF is not clear exactly who will do the testing and evaluation of the buses. This should be independent of the manufacturers and specified in the full project document.

STAP advisory response	*Brief explanation of advisory response and action proposed*
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 revision required.	STAP has identified specific scientific or technical challenges, omissions or opportunities that should be addressed by the project proponents during project development. 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.
3. Major revision required	STAP has identified significant scientific or technical challenges or omissions in the PIF and recommends significant improvements to project design. 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.