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: April 16, 2014 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: 5728
PROJECT DURATION : 4
COUNTRIES : China
PROJECT TITLE: Accelerating the Development and Commercialization of Fuel Cell Vehicles in China
GEF AGENCIES: UNDP
OTHER EXECUTING PARTNERS: Ministry of Science and Technology of the People's Republic of China (MOST)
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

1. STAP welcomes this project which addresses regulations for low-carbon transport in Chinese cities linked with mobilizing investment â€“ the main part of the project. Barriers remain, including the high costs of fuel cell stacks, and this project aims to try and overcome them. The type of fuel cell under investigation is assumed to be proton exchange membrane that is mentioned as being the most suitable for transport applications.
2. Comparative fuel cell vehicle testing is a minor component, but seems to be underfunded if imported vehicles are to be purchased as part of the testing and compared with local manufacture that are also being improved over time. Are the vehicles to be tested buses, automobiles or 3- or 2- wheelers? Who will test them and using what comparative indicators? It later talks of "passenger transport fleets" and therefore we assume this implies buses.
3. 101 vehicles are to be demonstrated in 4 cities using around three quarters of the funding. From what source is the hydrogen to come? Is it low-carbon? If from high C factor electricity or from fossil fuels, this is unlikely to be the case.
4. Much work has already been undertaken on hydrogen production and FC vehicle demonstrations in China. How is this project innovative above what has already been learned? What is GEF funding adding that has not already being undertaken? While Annex I to the PIF compares activities supported by the GEF previously in FCB I and II projects, lessons learned are not presented here, nor is it clear what particular focus this FCB III project has.
5. Terminal evaluation of the FCB II project stated that "the FCB Phase III would be essentially an expanded demonstration to remove the barriers that prevent its commercialization in China's city clusters and urban cities. Of course, among the main barriers to commercialization are: higher cost of the FCB unit relative to conventional fossil-fed engine buses; higher fuel cost of hydrogen compared to diesel, gasoline or CNG; need for higher efficiency to overcome higher fuel cost; shorter fuel cell stack lifetime and frequent replacement; durability and reliability issues; and safety concerns as it carries compressed hydrogen â€“ all of which conspire to form a barrier to commercialization of FC hybrid technology." How these barriers are addressed explicitly by this project remains unclear. Particularly important is the high cost barrier. Since the project is largely focused on enabling environment, what financial incentives will be provided remains uncertain.
6. Electric vehicle costs may decline over time but the view in IPCC Mitigation (www.ipcc.wg3.de â€“ see Transport chapter 8) is that by 2030 EVs will still be costly without major breakthroughs. This may help the proposed cost analysis in the PPG round. Overall system cost analysis should also include the distribution costs of the hydrogen where feasible. What period of life is expected for the on-board battery bank?

7. Issues related to technology transfer and intellectual property rights impede further commercialization of FCB in China. How will the project address these bottlenecks, particularly for local manufacturers?
8. Project focuses squarely on supporting a particular technology â€“ FCB, although the goal of low-carbon public transportation will be achieved only with an optimal mix of reduced energy intensity and energy efficient modes of public transport. STAP recommends that project proponents explore further what market, policy and financial incentives could be provided to advance more EE and cleaner technologies for public transport beyond FCB.
9. Component 4 on information dissemination is only satisfactory once the fuel cell data have been conducted.
10. Complementarities and potential overlap exist between this project and GEF ADB project (GEF ID 5627: ASTUD PRC Clean Bus Leasing). Project proponents are recommended to explore links and avoid overlap in the activities of the two projects.
11. Careful examination of what is already known elsewhere in this domain is warranted at the PPG stage.

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.