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 04, 2012 Screener: Christine Wellington-Moore

Panel member validation by: Hindrik Bouwman
Consultant(s):

I. PIF Information *(Copied from the PIF)*
FULL SIZE PROJECT GEF TRUST FUND
GEF PROJECT ID: 4915
PROJECT DURATION : 4
COUNTRIES : Russian Federation
PROJECT TITLE: Environmentally Sound Management and Final Disposal of PCBs at the Russian Railroad Network and Other PCB Owners
GEF AGENCIES: UNIDO
OTHER EXECUTING PARTNERS: Ministry of Natural Resources and Environment Russian Railroad Holding

GEF FOCAL AREA: POPs

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

The project seeks to "establish the national environmentally sound management (ESM) system for PCB's phase out and disposal and promote local use of non-combustion technologies for disposal of PCBs at the Russian railroad network and other PCB owners". It intends to carry out and effect the analysis, interim storage, collection, labelling, handling, transport and disposal of PCB-containing electrical equipment and related wastes. Institutional, regulatory and human resources capacity building to support the national ESM system for PCB disposal is also to be carried out.

As a former producer of PCBs and related equipment, the inventory of contaminated equipment is estimated to run in the millions of units. Overall level of awareness of the hazards of PCBs appears low; and with the absence of adequate legislation there has been little incentive to date for owners of PCB equipment to take special measures to decontaminate or phase out the equipment. As expected, there is commensurate low technical, institutional, and infrastructural capacity to deal with the PCB problem. There is also acknowledgement of the varied climate and development conditions within the country which will challenge efforts of the project. The stakeholder analysis appears to be fairly comprehensive, encompassing public and private sector, formal and informal sectors, and communities with risk of PCB exposure. The risk analysis however, could be better elaborated. See comments below for further STAP advice.

STAP's comments:

Apart from their high log KOW values which permit strong adsorption to nonpolar surfaces (eg organic carbon) and lipophilic matrices in food chains (both aquatic and terrestrial, PCBs are marked by a number of chemical and physical characteristics, not the least of which are:- a) the myriad of congeners in existence, with attendant different levels of chlorination, b) the difference in behaviours and break down products of these congeners when released to the environment, c) the difference in their degree to be metabolised and non-uniform break down products within organisms, d) their readiness to volatise when spread over soil and from water surfaces, e) their short atmospheric residence times (in the order of months), allowing them to vaporize and be re-deposited, cycling back between land and waters surfaces and air. Given these characteristics alone, it is hardly surprising that site-specific uniqueness has played a role in the recorded behaviour of PCBs in contamination cases around the globe. When one further considers that Climate Change is impacting, inter alia, on atmospheric temperature, rainfall regime, storm frequency and attendant drought/flood cycles, it is clear that in considering the potential impacts of PCB releases, it is equally important to look

at the physical-chemical characteristics of the congener along with the natural geological and hydrological features of the area of contamination, and the fluctuating atmospheric conditions (temperature, rain, wind, vulnerability to storms etc) of the site.

The STAP guidance document "Selection of Persistent Organic Pollutant Disposal Technology for the Global Environment Facility: A STAP advisory document (2011), with a focus on environmentally sound disposal of POPs. This follows initial contributions from the GEF (through the STAP) in 2003/2004 in relation to available non-combustion technologies for POPs disposal; and apart from this, the Basel Convention, acting in concert with the Stockholm Convention, has issued and periodically updates technical guidelines on POPs management. This guidance includes disposal requirements and listings of technologies that may be applicable to GEF projects. To date, these guidelines have been generally adopted by the Stockholm Convention as the standard reference. There have also been comprehensive reviews of technologies which are periodically published, and on-line libraries of technology data sheets are maintained by the Basel Convention and supporting organizations. The Fifth Conference of the Parties (COP-5) to the Stockholm Convention invited the Basel Convention to continue this work, specifically with respect to establishing the levels of destruction and irreversible transformation of chemicals to ensure POPs characteristics are not exhibited; considering methods that constitute environmentally sound disposal; defining low POP-content in wastes; and updating general technical guidelines as well as preparing or updating specific technical guidelines for environmentally sound waste management (SC-5/9). Likewise, in its decision SC-5/20, COP-5 further encourages the GEF and parties in a position to do so to facilitate the transfer of appropriate technologies to developing countries and countries with economies in transition (CEITs).

The findings of the document state, inter alia, that:

"…. the destruction or irreversible transformation of POPs in an environmentally sound manner is not limited by the availability of appropriate technologyâ€”there are a number of such technologies. Rather, it is limited by the practical ability to assemble and apply them--particularly in developing countries and CEIT's - in a manner that is environmentally effective, timely, and cost effective….. Destruction cannot be addressed in isolation. The application of POPs disposal technology should be viewed as one part of an overall POPs management process or system. This system includes steps taken in advance of the actual disposal or destruction to identify, capture, secure, and prepare POPs stockpiles and wastes for disposal. It also includes post-destruction steps to manage emissions, by-products and residuals. The management process depends upon high-quality information regarding POPs stockpiles and waste, and the effectiveness of the institutional and regulatory framework under which POPs management is undertaken."

Noting the above, STAP wishes to underscore the following points:

(i) Although the PIF identifies most of the steps involved in tackling the PCB challenge identifed, it could be improved by recognizing that the development of a sustainable POPs disposal system should include collection, packaging, transportation, and disposal of targeted POPs and POPs containing equipment, with active involvement of government, communities, and relevant stakeholders in the targeted areas. STAP suggests that a careful consideration of each element would identify mechanisms and support infrastructure that may be absent, resulting in a better stakeholder and risk analysis. For example, the stakeholders analysis could include private sector (though reference is made to looking into cooperation with a private-sector initiative), and the informal sector, to assess their roles, and the risks associated with these groups in sustainable measurement of PCBs.

(ii) The risk analysis does not look at climate-related risks though the PIF does acknowledge the climactic variability of a large country like Russia. Climate can greatly influence transportation protocols and criteria for site selection for the mid- to long-term storage of PCB wastes, and the nature of the construction elements necessary for storage facilities. Therefore management plans should take into account the potential consequences of natural disasters on stockpiles and POPs containing articles.

(iii) The potential of informal, repurposed use of POPs containing containers should be included in any targeted awareness in communities. There may be a large gender component to this (e.g. women could use them for household purposes; men could use them in other unrelated informal industries etc). It is unknown if this is indeed an issue in Russia as it is in many other countries, but it should be formally ruled out as a potential problem through analysis and evidence.

It is hoped that attention will also be paid to the handling of residuals from disposal processes. In developing the project document, and determining disposal options, though UNIDO's strengths in BAT/BEP are elaborated, there does not seem to be explicit mention of Basel guidance, and this could be further enhanced through use of the GEF guidance on technology selection for POPs disposal and the overall development of the ESM system for PCBs and pesticides. This

would ensure that a comprehensive set of parameters be used to select technologies for GEF investment (e.g. environmental performance, ability to manage residuals and transformation products of the destruction and decontamination processes, full assessment of pre-treatment steps required and attendant associated risks, and required resources and capacities to manage them). Consideration, and where needed, implementation of the aforementioned managemnt guidelines would be desirable in the course of project development and implementation, and would also ensure that the true costs of a technology are brought to light since pre-destruction steps (e.g. characterization of the PCB congeners to be handled, prioritization, capture and transport, containment and pre-treatment) can carry their own significant resource demands and capacity burdens. This can often be a significant barrier to implementation of technologies in developing countries and CEIT.

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.