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, 2015 Screener: Christine Wellington-Moore

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Consultant(s):

I. PIF Information *(Copied from the PIF)*
FULL SIZE PROJECT GEF TRUST FUND
GEF PROJECT ID: 9045
PROJECT DURATION : 4
COUNTRIES : Montenegro
PROJECT TITLE: Comprehensive Environmentally Sound Management of PCBs in Montenegro
GEF AGENCIES: UNDP
OTHER EXECUTING PARTNERS:
GEF FOCAL AREA: Chemicals and Waste

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):
Major issues to be considered during project design

III. Further guidance from STAP

The project seeks to establish an environmentally sound management (ESM) system for PCBs, with improvement of local capacity to detect and manage PCBs, refinement of the PCB inventory with support of an established public-private partnership, selective upgrading of facilities for safe storage of PCB equipment and oils, and piloting the disposal of at least 700t of PCB contaminated equipment and 200t of PCB contaminated soul. There is thought given to capturing learning and adaptive feedback so as to support replication and post-project sustainability.

A preliminary baseline was established through the country's NIP in 2013, based on non-exhaustive data obtained from the Administration for Inspection. The PIF does offer some figures from some facilities, but indicates that a proper exhaustive inventory is required.

STAP Comments:

Overall the PIF is written to basically follow past approaches for PCB projects that tend to come before the GEF, and properly embeds PCB disposal within a wider environmentally sound management framework. The problem, however, lies in the speculative approaches applied to scoping of the quantities of PCBs and PCB contaminated equipment, which in turn has implications not only for the size of the investment required, but the level of capacity and disposal technologies selected.

The PIF acknowledges that up to 3 years of inventory work will be required to determine the quantities of PCBs and PCB contaminated equipment in the country. It also admitted on page 7 that:

ïƒ˜ Monitoring / inspections capabilities are limited;
ïƒ˜ Information on cross-contaminated transformers (i.e. non pure PCBs) is scarce, as most of the information concern pure PCB equipment, therefore the extent of the PCB issue is not completely clear; indeed, CGES, the national electric company, started the activities for sampling, testing and labeling PCB equipment, which however is progressing very slowly;
ïƒ˜ There are no disposal technologies for PCB in place. Although due to the size of the country it may still be more cost effective to send PCB waste abroad for disposal, an in-depth cost estimation on the matter has not been undertaken to allow documented and informed decision making.

With these acknowledgements, the data presented in Table 2 is questionable since there is no way to know the proportion of online equipment that is actually PCB contaminated, so the total tonnage figure is

speculative. Estimates could vary significantly. The soil contamination is also estimated. Verification of totals is critical to technology selection and cost-benefit analysis of choosing a technology (including simply shipping overseas for disposal). If 3 of the 4 years of the project are to be spent on inventory, this leaves little time for actual technology assessment and disposal activity, meaning there is a great risk of the project going well past 4 years or of failing to meet disposal goals. Therefore it seems that it might be wiser for the work in Montenegro to begin with a first phase of inventory activity, and then, based on confirmed numbers, a second phase of work can be elaborated, where the technology selection, capacity needs and cost-benefit analyses can be undertaken accurately, with the appropriate investment set against it for financial, human and other resources.

For example, High Temperature Incineration (HTI) may be used on soils in moderate quantities. Chemical dehalogenation techniques as put forward also have limitations, such as sensitivity to co-contaminants, production of residuals that must also be treated/disposed of, and has not been proven to treat all PCB cogeners (http://www.chem.unep.ch/pops/indxhtms/cspcb05.html). In cases where there may be large levels of high contamination around storage facilities, as the document also admits may be possible on some sites, then perhaps the mechano-chemical dehalogenation (MCDTM) ball milling technology recently demonstrated in the UNDP/GEF Vietnam project (proposed by Environmental Decontamination Limited (EDL), or perhaps enhanced batch thermal desorption technology called Matrix Constituent Separation (MCSTM) proposed by Thermodyne Technologies Inc., might be explored. The STAP and GEF Secretariat have recently received the technical report from this demonstration, and have noted with interest the global application potential of the technologies. Specifically, an excerpt from the report (GEF/UNDP Project on Environmental Remediation of Dioxin Contaminated Hotspots in Viet Nam - Independent Evaluation of Three Pilot/Laboratory Scale Technology Demonstrations on Dioxin Contaminated Soil Destruction from the Bien Hoa Airbase in Viet Nam) prepared by independent consultant states that:

"The current demonstration work in terms of direct application is specific to PCCD/F soil contamination. However, it also demonstrates potential for remediation and possibly destruction capability in relation to complex organic chemicals generally. As such there is a linkage to a wide range of chemicals related remediation and chemical waste destruction applications of global interest, and specifically of interest to the GEF in its Chemicals Focal Area. This would include POPs as covered under Article 6 of the Stockholm Convention which sets out obligations of Parties to address POPs stockpiles and waste and POPs contaminated sites. More specifically it would have application in dealing with soil contamination as a result of contamination with POPs pesticides (typically but not limited to DDT and HCH) and PCBs which are widely encountered in developing and so-called countries with economies in transition. The broadening global interest in man-made chemical contamination beyond POPs as reflected in the GEF's expanded eligibility to encompass environmentally sensitive chemicals generally also extends to a wide range of the halogenated chlorinated chemical waste and contamination issues involving PAHs, PCPs, heavy hydrocarbons and chlorinated solvents. â€¦..

With that general overview of where these demonstrated technologies might have application, it is also emphasized that their applicability would have to be based on case specific demonstrations of their remediation and, in some cases, de-halogenation destruction effectiveness. They all have some track record on other priority chemicals and in fact the results of this demonstration for other secondary chlorinated chemical contaminants (acid herbicides and chlorophenols) add further evidence of their utility in other types of applications. Additionally, what the current work also demonstrates is the utility that each offer to do pilot or laboratory demonstrations and process optimization/treatability evaluations at readily available remote facilities. This could be a key element in the design of GEF funded projects in that it could be used as part of a qualification step in a staged procurement/contracting process."

While STAP concurs that there certainly is a need for PCB abatement work in Montenegro, there needs to be a much better baseline analysis so that the appropriate, cost-effective technologies and disposal options can be selected. Given the limitations laid out in the PIF, the inventory and technology evaluation may well be considered a stand-alone project in and of itself. Risks will also be better identified, making for a more robust disposal plan. Further, if past GEF investments and demonstrations in this domain can be brought to bear on this and other similar projects, additional effort could be focused on identifying and assessing new technologies which may be utilized.

Additional points:

1) Page 7: small typo in first para "Montenegro has also specific and strict rules concerning the level of PCB contamination in recycled oil: Waste oils with PCB content greater than 50 mg in 1 kg of oil, can be refined only if after the regeneration the obtained oil contains maximum 5 mg PCBs and maximum 30 mg halogen in 1 mg of oil". We assume that should read per kg of oil.

2) Page 9, Table 2: The column to denote number of pieces of equipment has numbers to two decimal places vs whole numbers. See earlier reservations on the lack of verification of actual contamination of equipment involved in generating totals, and other non-exhaustive methods to generate the scope of the problem.

3) In selecting sites for upgrading, there should also be consideration on the appropriate siting of facilities in the first place with respect to threat to water table, human settlement etc. This also has implications or the risk table on page 18 which currently does not take into account potential climate related risks to storage (and potential disposal) sites.

4) In developing the project document and determining disposal options, action should be taken to incorporate the Stockholm/Basel and GEF guidance on technology selection for POPs disposal and the overall development of the ESM system for PCBs. 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). Explicitly following these guidelines would be desirable in the course of project development, implementation, and monitoring and evaluation. This would also ensure that the true costs of a technology are brought to light since pre-destruction steps (eg. characterization of the PCB congeners to be handled, prioritization, capture and transport, containment and pre-treatment) can carry their own significant resource and capacity burdens, and can often be the barrier to implementation of technologies in developing countries and CEITs. Definition of environmentally safe low POPs concentrations would also be clearer and kept consistent with best practices. As noted above, STAP feels that this project needs to be phased, starting with an inventory and assessment process to better elaborate technology options and the true cost of remediation and/or disposal options.

STAP advisory response	*Brief explanation of advisory response and action proposed*
1. Concur	In cases where STAP is satisfied with the scientific and technical quality of the proposal, a simple "Concur" response will be provided; the STAP may flag specific issues that should be pursued rigorously as the proposal is developed into a full project document. At any time during the development of the project, the proponent is invited to approach STAP to consult on the design prior to submission for CEO endorsement.
2. Minor issues to be considered during project design	STAP has identified specific scientific /technical suggestions or opportunities that should be discussed with the project proponent as early as possible during development of the project brief. The proponent may wish to: (i) Open a dialogue with STAP regarding the technical and/or scientific issues raised. (ii) Set a review point at an early stage during project development, and possibly agreeing to 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 issues to be considered during project design	STAP proposes significant improvements or has concerns on the grounds of specified major scientific/technical methodological issues, barriers, or omissions in the project concept. If STAP provides this advisory response, a full explanation would also be provided. The proponent is strongly encouraged to: (i) Open a dialogue with STAP regarding the technical and/or scientific issues raised; (ii) Set a review point at an early stage during project development including an independent expert as required. The GEF Secretariat may, based on this screening outcome, delay the proposal and refer the proposal back to the proponents with STAP's concerns. 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.