At numerous locations throughout the world, large quantities of obsolete pesticides, obsolete industrial chemicals and unwanted chemical by-products can be found in storehouses, in equipment, in contaminated wastes, and in contaminated soils and sediments. These stocks, wastes and contaminated sites often contain one or more species of the twelve Persistent Organic Pollutants (POPs) that were identified for concern by the Governing Council of the United Nations Environmental Programme (UNEP) in decisions 18/32 and 19/13C. Every large POPs stockpile or storehouse has the potential for an accidental or unplanned catastrophic event that could release significant quantities of POPs into the environment. In addition, POPs routinely escape from storage sites and from contaminated locations into the general environment by volatilization, by ground and surface water run-off, and by other means.

UNEP GC decision 19/13C urges Governments not to wait to take action on POPs until after the new global POPs instrument enters into force. Rather, governments are urged to initiate action in the interim to reduce and eliminate releases of POPs to the environment. They are encouraged to follow the recommendations of the 1996, Final Report of the IFCS Ad Hoc Working Group on POPs that urges “realistic action be taken to destroy obsolete stocks of the listed POPs and remediate environmental reservoirs.” This Report notes that “in many regions, particularly in the developing countries, society still lacks appropriate and adequate destruction facilities and the costs associated with providing them may be greater than what the region can afford without technical assistance.” The Report concludes “there is need to develop new cost-effective small scale technologies for destruction and remediation of wastes associated with obsolete chemical stocks of POPs.” At its 1997 full Forum meeting, IFCS then called for further evaluation of “technologies alternative to high temperature incineration for the destruction, detoxification and containment of obsolete pesticides and hazardous industrial chemicals,” and it “invited the United Nations Industrial Development Organization (UNIDO) to consider carrying out pilot projects.”

### PROJECT CONCEPT PAPER

#### 1. Project name:

Demonstration of Viability and Removal of Barriers that Impede Adoption and Effective Implementation of Available, Non-combustion Technologies for Destroying Persistent Organic Pollutants (POPs)

#### 2. Proposed GEF Implementing Agency:

United Nations Development Programme (UNDP)

#### 3. Country or countries in which the project is being implemented:

Global : Philippines, Slovakia

#### 4. GEF focal area(s):

International Waters

#### 5. Operational program/Short-term measure:

OP# 10 – Contaminant-Based Operational Programme: Global Contaminants Component
6. Project linkage to national priorities, action plans and programmes:

At the global level, a number of activities and initiatives have been undertaken relevant to this project. These include:

1) In 1995, representatives of Governments and the European Commission adopted the Washington Declaration on Protection of the Marine Environment declaring their commitment to protect and preserve the marine environment by action to address land-based impacts upon the marine environment including those that result from POPs. This declaration specifically called upon the international community to promote access to cleaner technologies, knowledge and expertise to address land-based activities that degrade the marine environment, in particular for countries in need of assistance.

2) In 1997, the Governing Council of UNEP concluded in decision 19/13C that international action is required to reduce risks that arise from the environmental release of POPs and convened an Intergovernmental Negotiating Committee whose mandate is to establish a global, legally binding instrument to protect health and the environment from POPs. Decision 19/13C urged Governments not to wait to take action on POPs until after the new POPs instrument enters into force, but to initiate action in the interim to reduce and eliminate releases of POPs to the environment. Governments were encouraged to follow the recommendations of the Manila, June 1996, Final Report of the IFCS Ad Hoc Working Group on POPs. This report recommends “that realistic action be taken to destroy obsolete stocks of the listed POPs (including PCBs) and remediate environmental reservoirs.” It notes that “in many regions, particularly in the developing countries, society still lacks appropriate and adequate destruction facilities and the costs associated with providing them may be greater than what the region can afford without technical assistance.” It states that “there is need to develop new cost-effective small scale technologies for destruction and remediation of wastes associated with obsolete chemical stocks of POPs.”

3) In 1997, the Intergovernmental Forum on Chemical Safety (IFCS), at Forum II, adopted a Report (Programme Area D – Establishment of Risk Reduction Programmes Obsolete Chemicals), which extended an invitation to “FAO together with UNEP and other relevant IOMC Participating Organizations to evaluate further technologies alternative to high temperature incineration for the destruction, detoxification and containment of obsolete pesticides and hazardous industrial chemicals.” This report also “invited the United Nations Industrial Development Organization (UNIDO) to consider carrying out pilot projects.”

In Slovakia there are a number of specific activities and initiatives that have been undertaken at the national level to demonstrate country commitment to action on POPs. These include:

• Publication in 1998 of The National Profile of Chemical Management;
• Establishment of The Intersectoral Committee for Chemicals Management;
• The Ministry of the Environment of the Slovak Republic and the Ministry of Public Health have given specific definition to their responsibilities with regard to POPs;
• The inventory of chemical substances produced or used in the Slovak Republic in volumes higher than 1000 tonnes a year was conducted in 1992/1993, and Guidelines for priority setting of chemicals with high exposure potential were elaborated by the specialised institute, Ecotoxicological Centre Bratislava s.r.o., in collaboration with the Danish Environmental Protection Agency in 1996;
• Slovakia was a participant in UNECE activities preceding the adoption of the POPs Protocol to the Convention of Long-range Transboundary Air Pollution and signed the protocol in 1999;
• An intersectoral POPs working group has been established and is led by the Ministry of Environment;
• A preliminary study for the National Plan of POPs Emissions Reduction has been elaborated and a POPs emission inventory for the years 1990, 1995 and 1997 has been developed; under UNEP and in other POPs related UNEP activities;
• Slovakia’s first PRTR was elaborated in 1999, based on available sector specific inventories of pollutants in broad intersectoral collaboration under the guidance of UNEP and UNITAR; and
• The chemical industry in Slovakia has adopted the Responsible Care principles.
Slovakia has also taken legislative and administrative activities with regard to specific groups of POPs, e.g. PCBs. These include:

- Naming of The Department of Solid Wastes of the Ministry of Environment of the Slovak Republic (Department) as the responsible body for the development and enforcement of PCB related legislation.
- EU Directives concerning handling of PCBs containing materials will be incorporated in the near future.
- The Department is managing activities related to the detailed inventory of used capacitors and the development of a detailed strategy for the handling of PCB-containing materials and equipment.
- A Department of Risk Factors has been incorporated into the Ministry of Environment. Risk assessment and risk management issues are addressed in existing environmental legislation.
- Specific guidelines for conducting risk assessment for chemicals as well as polluted sediment have been published by the MoE, and relevant EU Directives are being implemented into the Slovak legal system.
- The Department of Air Protection under the Ministry of Environment has been given responsibility for the implementation of legislation and international protocols with regard to air quality.

The Philippines has undertaken steps which demonstrate its commitment to POPs related activities and programmes.

- In 1995, the Government of the Philippines, together with the Government of Canada, hosted in Vancouver on June 4-8, the first International Experts Meeting on Persistent Organic Pollutants, "Towards Global Action". This workshop concluded: "There is enough scientific information on the adverse human health and environmental impacts of POPs to warrant coherent action at the national, regional and international level. This will include bans, phase-outs and provisional severe restrictions for certain POPs."

- In June 1996, the Government of the Philippines hosted in Manila, the expanded meeting of the IFCS Ad Hoc POPs Working Group. This meeting adopted a Final Report that was forwarded to the UNEP Governing Council. Its Recommendations provide the basis of UNEP GC Decision 19/13C establishing the POPs INC.

- The Government of the Philippines has been an active participant in the Intergovernmental Negotiations on POPs.

Philippine Government efforts to deal with its PCB problem are longstanding and include:

- The legal framework for action on PCBs was established in 1990 when the Philippine Congress enacted the Toxic Substances and Hazardous and Nuclear Wastes Control Act (Republic Act 6969). This Act provides the basis in law for the management of toxic chemicals; and for protection of public health and the environment from risk or injury caused by toxic chemicals and hazardous wastes.

- In 1992, the Department of Environment and Natural Resources (DENR) issued Administrative Order No. 29 (DAO 29) that provides “Implementing Rules and Regulations of Republic Act 6969.” DAO 29 establishes a Philippine Priority Chemicals List (PCL) of 28 substances including PCBs. DAO 29 also provides a basis by which the DENR can issue Chemical Control Orders (CCOs).

- In 1995, the Environmental Management Bureau (EMB) of DENR produced its first Draft CCO for PCBs. The policy objectives of this first draft PCB CCO included the establishment of “limitation of use, bans and phase out programs that will be applied to PCB containing substances and articles exceeding certain concentrations of PCBs” and requirements for “proper treatment, storage and disposal of PCBs.” It mandated “high temperature incineration at sufficient detention time to achieve 99.99 percent destruction,” for fluids and articles that contain more than 500 ppm PCBs, and it mandated a somewhat more relaxed standard for fluids and articles containing PCBs in concentrations from 50 ppm to 500 ppm. This draft PCB CCO, however, was never finalized.
In 1996, EMB recognized that its staff lacked adequate expertise to manage PCBs control and cleanup activities and therefore, it sought assistance in these matters from the United Nations Development Programme (UNDP). UNDP agreed to fund an expert mission to provide this assistance.

The UNDP mission produced a report on its work dated 8 November 1996. This report states that: “The EMB advised that at the present time (1996) there is no reliable, established information on PCB inventories in the Philippines.” It indicates, however, that “Considerable quantities of PCB oil are likely to be contained in equipment operated by the many ... power companies in the Philippines,” and it concludes that: “An estimate of total 2000 to 3000 tonnes of PCB oil in the Philippines was considered reasonable (but very approximate).” It appears that little of no PCBs have been exported and/or destroyed since 1996.

The UNDP report makes note of “a number of factors requiring consideration before decisions can be made on appropriate technology for treatment and disposal of PCB or PCB-containing wastes or remediation of land contaminated with PCBs.” Some of the listed factors include:

a) “the current status of the development of the technology, its availability in the Philippines or elsewhere and, if not currently available, the likely time frame for further development;”

b) “the preferred mode of implementation (e.g. small, mobile facility or larger centralized facility;”

c) “process safety and reliability, including potential impacts associated with accidental release of contaminants;”

d) “nature of emissions from the process, particularly, process effluent, air emissions and residual solids;” and

e) “likely community acceptability of the process.”

The UNDP report states: “At the present time, the Philippines has no suitable, approved treatment or disposal facilities of PCB or PCB waste materials.” It says: “The lack of treatment and disposal facilities in the Philippines has been recognized by the government.” The UNDP Mission Report references previous studies that: “recommended an integrated treatment, storage and disposal facility capable of dealing with the range of hazardous wastes generated by Philippines industry and commerce” and it states: “It is understood that the Government intends inviting bids from prospective developers of such a facility in March 1997.”

Subsequent to this, however, the anticipated planning process to establish “an integrated treatment, storage and disposal facility” failed and the 1995 Draft PCB CCO was abandoned. There were several reasons. In part, the DENR and its EMB were severely limited in resources and capacity they were able to mobilize to address these difficult problems. In addition, questions began to arise over how to specify and select appropriate and environmentally sound PCB destruction technologies.

In June 1999, the Philippine Congress enacted the Philippines Clean Air Act (Republic Act 8749). This Act mandates action to address POPs and also incorporates a provision (Section 20) calling for a “Ban on Incineration.” This provision states in part: “Incineration, hereby defined as the burning of municipal, bio-medial and hazardous wastes, which process emits poisonous and toxic fumes, is hereby prohibited … With due concern for the effects of climate change, the Department shall promote the use of state-of-the-art environmentally sound and safe non-burn technologies for the handling, treatment, thermal destruction, utilization, and disposal of sorted, unrecycled, uncomposted municipal, bio-medical and hazardous wastes.”

The leadership of EMB has changed since 1995/1996 when the first draft of the PCB CCO was produced and when the UNDP mission took place. The new leadership set itself the goal of finalizing CCOs for a number of toxic substances, and it has completed all but the PCB CCO. It is currently drafting and consulting on a new PCB CCO that it plans to finalize in the fourth quarter of 2000.

The terms of the new draft PCB CCO are currently under discussion with impacted industry groups and are not yet public. It is anticipated, however, that the PCB CCO will mandate that PCB-containing transformers and capacitors be taken out of service by a date still to be finalized (probably sometime between 2004 and 2010). It is also anticipated that the CCO will mandate that responsible parties provide EMB with reliable PCB inventories; require identification, labelling and frequent inspection of PCB-containing equipment; and establish plans, requirements and timetables for the cleanup, disposal and destruction of existing PCB stocks.
EMB recognizes, however, that at present, there still exists no facility in the Philippines that is appropriate for use in the destruction of PCB-containing stocks and wastes. It recognizes further that proper implementation of its PCB CCO will require the establishment of an integrated treatment, storage and disposal facility capable of dealing with PCBs (as was already recognized in consultations associated with the 1996 UNDP Mission).

EMB is actively seeking assistance in identifying, securing and deploying effective, environmentally sound and safe technologies that can be used for PCB destruction as part of an integrated treatment, storage and disposal facility. It is important to EMB that primary consideration be given to non-burn technologies that satisfy the requirements of the Philippines Clean Air Act of 1999. For these reasons, EMB has indicated that it strongly supports the proposed UNDP/UNIDO Global Project on Removal of Barriers to Effect Implementation of Available, Non-combustion Technologies for Destroying Persistent Organic Pollutants (POPs); and EMB strongly supports Philippine Government participation in this Project.

7. Status of national operational focal point review (dates):
   Submitted: August 2000 (Both Philippines and Slovakia)
   Acknowledged: September 2000 (Both Philippines and Slovakia)
   Endorsed: September 2000 (Both Philippines and Slovakia)

8. Project rationale and objectives:
   The objective of the proposed Global Project is to demonstrate the viability of available non-combustion POPs destruction technologies and to remove barriers to their adoption and effective implementation in countries with developing economies and economies in transition. It will prepare and implement POPs destruction demonstration activities in Asia (Philippines) and in Eastern Europe (Slovakia). Approaches taken in the Philippines and Slovakia, and lessons learned during the Preparatory Funding phase and during the Full Project will be made available to other countries. Donors/partners will be recruited to expand the scope of the proposed project to other countries.

Selection rationale. The Philippines and Slovakia were selected as initial demonstration countries for a number of reasons. One of them is a developing country in Asia; the other is a country with an economy in transition in Central/Eastern Europe. They have very different geographic, historical and economic circumstances, and they therefore provide the Project with a range of likely experiences and obstacles that will need to be encountered and overcome in order to demonstrate appropriate non-combustion POPs destruction technologies, and to draw lessons and information that will be broadly applicable on a global scale for countries with developing economies and economies in transition. Both countries recognize that they have an urgent need to address specific obsolete POPs stocks that they possess, and both countries have been actively soliciting international support to address this problem. Finally, there is antipathy in both countries toward the utilization of waste combustion technologies, and there is positive interest in demonstrating appropriate non-combustion alternative technologies.

Slovakia urgently desires to cleanup and destroy a very large PCB stockpile (ca. one thousand tonnes) stored at a former PCB manufacturing factory. The environment and biota in the district surrounding the factory are already significantly contaminated by PCBs, and Slovakia has been urgently seeking assistance in the cleanup and destruction of this large stockpile before further significant environmental PCB releases occur. There is recognition that the Project’s demonstration activities will need to take place in the context of a larger and longer-term urgent desire to cleanup significant PCB environmental contamination throughout the district.

In the Philippines, concern about PCB contamination is a public issue, and the Environmental Management Bureau (EMB) has been working to complete a PCB Chemical Control Order that it anticipates will include a comprehensive plan addressing disposal of PCBs still in use by the country’s electrical power companies. The lack of any domestic capacity to destroy PCBs or similar wastes is recognized as an obstacle to finalization and implementation of a PCB CCO. For legal and other reasons, incineration is not seen to be an acceptable option.
During an initial survey of possible demonstration countries and stockpiles, both PCB cleanup and destruction activities as well as obsolete organochlorine pesticide stockpile cleanup and destruction activities were given consideration. The final decision to select two countries wishing to address PCB stockpiles was circumstantial. If additional and sufficient co-financing could be found, it would be desirable to expand the project’s demonstration activities to one or more additional countries wishing to cleanup and destroy a significant obsolete pesticide stockpile. Furthermore, it is intended that the experiences and lessons of this project will be useful and applicable to future efforts addressing obsolete POPs stockpiles in general, and will not be limited in usefulness and applicability only to future efforts to cleanup and destroy PCB stockpiles.

Phasing of Project

A. PDF-B. Work under the proposed PDF-B will establish criteria and guidelines for the identification and selection of appropriate, non-combustion technologies for use in the destruction of obsolete Persistent Organic Pollutants (POPs) stockpiles and the cleanup and remediation of POPs contaminated soils or sediments. This will include a preliminary technology assessment that will produce a relatively short list of appropriate technologies for further consideration. The PDF-B will also establish planning guidelines for the deployment of such technologies that can be implemented in regionally appropriate ways. Special emphasis will be given to procedures that facilitate the participation of civil society groups in ways that will encourage their confidence and support for the proposed destruction and/or cleanup activities. The proposed PDF-B will also define the kind of technical specifications that needed to be addressed in a detailed planning exercise. These will include detailed technology and vendor selection specifications; and also performance criteria and operating standards appropriate to the circumstances likely to arise in countries with developing economies or economies in transition.

B. PDF-C. Detailed planning activities will then be carried out in each country under a proposed PDF-C. The output of this work will include a detailed full project implementation workplan for each country as well as technology specifications, operating procedure specifications and other technical data that will be needed preparatory to the negotiation of contracts and/or other arrangements to acquire, deploy and operate appropriate POPs destruction technologies in the two participating countries.

C. Full Project (Global Project). The full project will deploy appropriate, non-combustion technologies at the selected demonstration sites to destroy and cleanup significant obsolete POPs stockpiles in participating countries. This work will be carried out in accordance with detailed country implementation plans for deployment of non-combustion technologies in the two participating countries.

The project will provide ongoing reports on the experiences of the POPs destruction and cleanup activities, including a full report and an evaluation of all costs; performance and operating data; environmental impacts; safety issues; an evaluation of civil society input and participation; commercial considerations; the details of any special problems that were encountered. This report will include specific recommendations on ways the results of the project can be replicated globally.

Project reports, detailing the experience and results of the project, will provide the basis for a global evaluation of barriers that impede the further utilization of appropriate, non-combustion technologies for destruction of obsolete stockpiles of POPs. This information and evaluation will then be used to develop and propose strategies that can help overcome barriers to the deployment of these technologies in other countries with similar conditions. A UNIDO-based global support program will be developed for continued information dissemination and for facilitating deployment of non-combustion technologies in other parts of the world using the models, lessons, experiences gained in this project.

Alternative technologies to be considered:

A global technical committee will be convened under the PDF-B. One of its tasks will be to establish selection criteria to screen non-combustion destruction technologies in order to help determine which...
might be appropriate for use under this project. Based on consultations with Public Interest NGOs with expertise in this field, broad support from civil society can best be obtained for safe and effective destruction technologies that, at a minimum, exhibit the following two properties:

1. They operate in systems that are essentially closed. This means that uncontrolled releases of POPs and other substances of concern can be avoided, and all residues from the destruction process (gaseous, solid and/or liquid) can be contained, analysed and, if necessary, further processed prior to release. It also means that the technology can avoid the periodic “upsets” that plague incinerators and other open destruction process.

2. They can achieve total destruction efficiencies (DEs) for POPs and other substances of concern that approach 100%. This means that they not only effectively eliminate gaseous, air-emissions of POPs and other toxic pollutants of concern (as measured by a high destruction and removal efficiency or “DRE”) but they also effectively eliminate releases of POPs and other pollutants of concern as solid wastes and as liquid wastes.

Several available technologies from multiple vendors should be able to meet these and other criteria to be established by the project’s global technical committee and approved by the project. For indicative purposes only, we will here discuss two technologies that, among several others, should be able to meet the project’s likely technology screening criteria: base-catalysed dechlorination and gas-phased hydrogenation.

Base-catalysed dechlorination is being commercialised by several companies in a number of countries. One company vending base-catalysed dechlorination systems is the Australian Defence Industries (ADI). ADI sometimes couples its dechlorination process with a thermal desorption unit and markets this under the name “ADOX”. A gas-phased hydrogenation system commercialised by a Canadian company called “Eli-Ecologic” has operated for several years in Australia, and has recently licensed its technology to a Japanese company. Eli-Ecologic is now actively bidding on major contracts in many countries. Both of these technologies have demonstrated operating success at commercial scale.

It would be premature, however, to pre-decide the details or all of the elements of the technology screening and selection criteria; and it also would be premature to attempt to pre-decide exactly which technologies and vendors will or will not be finally considered. In the selection process, other matters that will need to be considered in selecting technologies for demonstration will include (but not be limited to) cost factors and country-level infrastructure requirements such as necessity for reliable supply of electricity, gas, water, other material inputs etc. It is expected that several technologies from multiple vendors will meet all the screening criteria, and that final technology selection for each demonstration activity will be based on site-specific needs, circumstances as well as economic, commercial and other relevant considerations.

In screening and evaluating technologies that may be appropriate for deployment under this project, technologies discussed in several existing reports (as well as others that can be identified) will be considered. Reports to be consulted will include (but not be limited to) the following:


This report is now three years old, but it provides some detailed evaluations of several technologies – including BCD and Eco-Logic – that may be appropriate for use in this project. Some of the others include: Solvated Electron Technology (developed by Commodore Environmental Services, US) and Supercritical Water Oxidation.

This report considers seven technologies under consideration by the United States Department of Defense for the destruction of chemical weapons and reviews their applicability for destruction of hazardous wastes. Two of the technologies considered in the report – Eco-Logic’s gas phase hydrogenation, and Commodore’s solvated electron technology – are indicated to be currently in use for “the Full-scale; commercial treatment of PCB-contaminated wastes.” Both are also indicated as being appropriate for use with a range of other POPs such as DDT, dieldrin, dioxin, hexachlorobenzene etc.


This report was based on a questionnaire sent to approximately 50 companies believed to have developed and/or to be exploiting technologies to eliminate PCBs from transformers, capacitors and oils. Half of the companies replied, and the report summarizes their answers.

Many of the responding companies employ solvent washing to extract PCBs from capacitors and transformers, concentrate the PCBs, and then ship them off for destruction elsewhere. Several of the respondents, however do employ non-combustion destruction technologies that may be considered for use in this project, these include Eco-Logic and several that employ dechlorination processes utilizing sodium and other methods.

9. Expected outcomes and activities of the Full Project (PDF-B and C, Project Brief and project document):

The full Global Project (including its PDF-B and C activities) will have three basic outcomes.

1) The global project will carry out successful activities in participating countries to cleanup and destroy significant obsolete POPs stockpiles in each country, and while doing so, it will also contribute to each country’s capacity.

2) The global project will demonstrate the viability and efficacy of appropriate non-combustion POPs destruction technologies under circumstances that prevail in developing countries, and it will contribute to removing barriers to the widespread deployment and utilization of such technologies.

3) The global project will demonstrate full and effective civil society participation in all project elements; and in doing so, it will demonstrate methods to achieve broad-based support or acquiescence within civil society for POPs cleanup and destruction activities.

A. PDF-B outcomes and their related activities.

Outcome 1: Identification of appropriate non-combustion technologies to destroy POPs stockpiles and/or cleanup POPs contaminated sites.

Activities:

1.1 Establishment of technology screening and selection criteria and guidelines;

1.2 Performing preliminary assessment of the available technologies that could be deployed to demonstrate their relative efficacy, and establishing a relatively short list of appropriate non-combustion technologies for further consideration that satisfy the established criteria.

1.3 Preparing a preliminary evaluation and identification of barriers that might impede deployment of appropriate technologies in participating countries.

1.4 Communicating the results.
Outcome 2: Establishment of planning guidelines (to be used in both PDF B and PDF C planning activities) appropriate for utilization by developing countries and countries with economies in transition in efforts: to acquire such technologies for use in the cleanup and destruction of POPs stockpiles and/or POPs contaminated sites; to appropriately, safely and cost-effectively deploy them; and to build and maintain civil society support or acquiescence.

Activities:

2.1 Developing flexible and adaptable planning process guidelines for country activities to establish broadly supported country implementation plans that are complete and that satisfy all Project requirements.

2.2 Preparing guidelines that will be used (in PDF B and PDF C planning activities) to identify and to fully define and specify the POPs stockpile(s) and/or site(s) that will be targeted for destruction and cleanup activities; and preparing guidelines to be used in assessing environmental impacts at the selected site(s).

2.3 Preparing guidelines (to be used during PDF-B planning activities) to provisionally select from among the technologies identified in 1.2 above, taking into account the specific nature of the POPs stockpiles(s) and/or site(s) identified and taking into account also, likely longer-term country needs.

2.4 Preparing guidelines (to be used during PDF C planning activities) detailing the scope of technology specifications that will need to be prepared in each country under the PDF C, preparatory to technology acquisition under the full Project.

Outcome 3: Completion of initial, country-level planning activities in participating countries; preparation of PDF C for the development of more detailed plans and specifications for technology acquisition and deployment in each country; and also, production and dissemination of reports.

Activities:

3.1 Identification (without yet a full and precise technical definition and specification) of the POPs stockpile(s) and/or site(s) that will be targeted for destruction and cleanup activities in each participating country utilizing guidelines established in 2.1 and 2.2 above.

3.2 Provisional selection of destruction technology to be mobilized in each participating country for use in the cleanup and destruction of the identified POPs stockpile(s) and/or site(s) utilizing guidelines established in 2.1 and 2.3 above.

3.3 Preparation of an initial country plan in each participating country for implementation of POPs destruction and cleanup activities including provisional identification of the location(s) where mobilized technology will be sited and operated.

3.4 Production of a PDF-C proposal for the development of detailed plans and specifications for the deployment of the selected technology for the cleanup and destruction of the identified POPs stockpile(s) and/or contaminated sites(s), and

3.5 Production and distribution of reports and information on project activities undertaken during the PDF-B and the issues they address, including a final report on PDF B activities.

Outcome 4: Establishment of broad support by civil society and other stakeholders for the Project’s proposed POPs cleanup and destruction activities. (Note: this outcome and its related activities begins with the PDF B, but continues during the PDF C and the rest of Full Project implementation.)
Activities:

4.1 Consultations between the project; Government representatives or agencies, NGOs, CBOs, business and industry groups, representatives of the academic and scientific community, and other relevant stakeholders.

4.2 Securing support from all relevant government agencies for implementation of POPs destruction and cleanup activities including all needed approvals and permits that might be required.

4.3 Permitting and encouraging participation and input in planning activities by relevant NGOs, civil society organizations and others; providing technical and other resources to NGOs and civil society groups, as needed, to permit informed and constructive civil society participation.

B. PDF-C outcomes and their related activities.

Outcome 1: Establishment of detailed country plans and specifications for the acquisition and proper utilization of appropriate non-combustion technologies in participating countries for the cleanup and destruction of POPs stockpile(s) and/or contaminated site(s).

Activities:

1.1 Establishing a precise and full definition and specification of the POPs stockpile(s) and related contaminated site(s) identified during PDF B activities in each participating country, including, as appropriate, qualitative and quantitative analysis, and utilizing planning guidelines established under the PDF B (2.1 and 2.2).

1.2 Finalizing the selection of the destruction and cleanup technologies to be acquired and deployed during the project, and producing all necessary technical specifications utilizing planning guidelines established under the PDF B (2.1 and 2.4).

1.3 Establishing operational guidelines and protocols to assure safe and effective operation; establishing performance standards by which to evaluate the selected technology and its operational performance; establishing guidelines and specifications for monitoring and oversight activities that will be used to assess the effectiveness, environmental impact, safety and costs of the demonstration POPs destruction activities; specifying the information to be collected during project implementation (e.g. all costs, operational logs and data, monitoring data on emissions and releases, safety records, performance data, etc.)

1.4 Finalizing and specifying the location where cleanup and destruction technologies will be deployed during project implementations including the production of any needed environmental impact assessment(s).

1.5 Assessing current legislation and regulations (including enforcement) pertinent to the activities of the project. Consideration will be given to the extent to which these are appropriate and adequate, and a determination will be made on whether they will need to be adjusted to accommodate the requirements of the selected approach and technology application for use at the selected site. The issue of liability for cleaning-up POPs stockpiles will also be reviewed as part of the overall review of relevant environmental legislation in the participating countries taking into account all provisions of the Stockholm Convention (which should have already been signed by the time this activity occurs, and which possibly may by then have already been ratified by participating demonstration countries). A review will be made of parties that may bear some historical or ongoing responsibility for the creation of the obsolete stockpile(s) of concern, and consideration will be given to the nature and extent of their appropriate participation in the demonstration POPs cleanup and destruction activities.

1.6 Assessing the capacity of potential vendors to provide selected technology for timely deployment, and, if needed, developing strategies to overcome identified capacity deficits.
1.7 Preparing an operating plan; and securing approval of the plan and approach by the responsible government authorities. This will include, inter alia, specific national and other stakeholders commitments to successful project implementation, resources to be deployed, budgets, barriers to be addressed.

1.8 Developing a sustainability plan to address ongoing POPs cleanup and destruction activities in each country beyond those to be undertaken in the course of the demonstration project. This will include initial consideration of provisions and arrangements for possible utilization of the deployed technology within the country subsequent to the completion of the demonstration project and/or provisions and arrangements for decommissioning and removal of the technology. It will also include assistance to participating countries in evaluating their overall POPs destruction and cleanup needs, and in exploring ways to acquire the domestic capacities needed to meet these needs.

**Outcome 2:** Preparation of Project Brief and Project Document; and also, production and dissemination of reports.

**Activities:**

2.1 Producing a Project Brief and Document that includes the budget with a detailed assessment of baseline and an incremental cost analysis and other relevant material necessary to commence Full Project implementation.

2.2 Production and distribution of reports and information on project activities undertaken during the PDF C and the issues they address, including a final report on PDF C activities. Documentation of the PDF experiences and outputs including an evaluation of the opportunities for participation and input by stakeholders, and the effectiveness of the process in producing an effective and broadly supported implementation plan.

C. Full Project Implementation outcomes and their related activities:

**Outcome 1:** Successful destruction of a significant POPs stockpile in each participating country utilizing an appropriate non-combustion technology, consistent with project objectives. This will be achieved while maintaining agreed upon performance standards; while satisfying agreed upon operational and monitoring protocols; and while maintaining support from all relevant governmental authorities and from civil society.

**Activities:** Acquiring selected technologies for POPs cleanup and destruction; operation in accordance with all provisions of country plans, operational guidelines and other aspects of the Implementation plans established under PDF B and C activities.

**Outcome 2:** Establishment of longer-term arrangements in each country for continuing and sustainable activities for the destruction of remaining obsolete POPs stockpiles and, where relevant, for the cleanup of POPs contaminated sites.

**Activities:**

2.1 Implementation of sustainability plans agreements in each country addressing ongoing POPs destruction and cleanup activities beyond those undertaken in the course of the demonstration projects. This will include provisions and arrangements for possible utilization of the deployed technology within the country subsequent to the completion of the demonstration project, but may also include provisions and arrangements for decommissioning and removal of the technology (for example under circumstances where only a temporary facility is desired at the selected location).

2.2 Provision of assistance to participating countries in an evaluation of the country's overall POPs destruction and cleanup needs, and in exploring ways to acquire the capacities needed to meet these needs.
**Outcome 3:** Reduction of barriers to utilization of appropriate non-combustion POPs destruction technologies.

**Activities:**

3.1 Collecting, analyzing and disseminating data collected during the project; describing and evaluating project experiences and the lessons learned;

3.2 Listing and describing the barriers (e.g. legislative, vendor capacity, technical awareness, financial, political and institutional) that were encountered. Describing the strategies that were utilized for their removal; and evaluating the applicability of this experience and lessons learned for use by other countries with similar circumstances;

3.3 Evaluating the information and planning guidelines documents; reviewing how well they worked and where they failed; and updating these planning guidelines to make them maximally useful as part of an effort to make them available to other countries with similar circumstances;

3.4 Developing and proposing strategies for barrier reduction activities that can be used by other countries with similar circumstances who also are facing difficulties in carrying out efforts to destroy stockpiles of POPs, and to clean up contaminated sites;

3.5 Establishing a UNIDO-based global support system for continued information dissemination and for facilitating deployment of non-combustion technologies in other parts of the world using the models, lessons, experiences gained in this project.

3.6 Producing and disseminating of project reports including a final report with emphasis on conclusions reached and lessons learned.

**10. Country eligibility:**

The Philippines and Slovakia are both eligible Under Para. 9. (b) of the GEF Instrument.

Furthermore, the proposed project conforms with the GEF Operational Strategy and more specifically to the Global Contaminants Component of Operational Program Number 10, the Contaminant-Based Operational Program.

As stated in the Program Scope of OP #10, the “GEF plays a catalytic role in demonstrating ways to overcome barriers to the adoption of best practices limiting contamination of International Waters.” Further, OP #10 states that “GEF interventions……tend to demonstrate that technological barriers can be overcome or that measures aimed at removing barriers can be implemented.” The proposed project is consistent with and designed to accomplish the removal of barriers to best practices. More specifically, in the Global Contaminants Component of OP #10, it is stated that the “GEF may support….the agreed incremental cost of processes and measures that demonstrate prevention or reduction of releases (of POPs) in recipient countries.” The project is completely consistent with this objective.

The activities and outputs of the proposed project are compatible with the Outputs that are the subject of OP 10. Specifically, the proposal is responsive to OP 10.18 Outputs (a), working to implement fast-track demonstration projects; (b), undertaking an analysis of priority contaminants requiring action and removing the barriers to the required action; (c), the establishment of multi-country, donor, institutional and stakeholder commitments to implement expected baseline and additional actions; (d), the initiation and documentation of stakeholder participation in determining the identification of priority contaminants, the barriers to action, and the expected baseline and additional actions to be implemented; and (g) (i) the use of cost-shared incentives to cover costs associated with the development of new technologies to neutralize priority contaminants and the development of economic instruments to illustrate the feasibility of measures to abate/prevent priority contaminant releases.
Consistent with OP 10, the Full Project will include cost-shared incentives for leveraging government, private sector, and donor action to achieve implementation in the two targeted countries and in other countries as the leveraging of other, additional financial support may make possible. Other GEF requirements regarding incremental cost, as described in OP 10.18 (g), will be followed.

Lastly, the project will give very high priority to stakeholder involvement at all stages of PDF-B, PDF-C and Full Project implementation. This level of stakeholder involvement is explicitly stated as a requirement of projects undertaken under OP #10.

11. Sustainability (financial, social, environmental) and replicability:

The financial sustainability of the project rests with the assumption that the successful removal of the identified barriers to the deployment and use of non-combustion technologies for POPs destruction will result in a substantial increase in their use. One barrier that has been pre-identified is the under-capitalization of many of the vendors of these non-combustion technologies. An assumption of the full project is that these alternative technologies are viable and are appropriate for use in countries with developing economies and economies in transition. Once they are successfully demonstrated, and subject to appropriate opportunities for input and participation, it is expected that selection and utilization of these technologies will command broad support of Civil Society. Thus they will help to overcome public opposition to the deployment of cleanup and destruction technologies that often has been associated with civil society opposition including the so called “not in my backyard” (NIMBY) syndrome. This demonstrated level of support is expected, in turn, to command the level of capitalization from regional development banks, bi-lateral donors, and others to replicate the successful pilot demonstrations that would take place in Slovakia and the Philippines.

It is understood that the parties who have legal responsibility for existing obsolete POPs stockpiles and POPs contaminated sites have the ultimate financial responsibility for costs associated with their destruction and cleanup. In some cases, however, governments must assume responsibility because the polluting party cannot be identified; or because the party is not financially solvent; or because the responsible party is or was a government-owned entity. Some governments that lack financial capacity may seek or need assistance in order to carry out this responsibility. Still, it is understood that in these cases, responsible parties and governments must contribute to the total cleanup costs within their capacity.

Finally, it must be understood that when government and other parties in society lack adequate capacity and resources to properly cleanup and destroy obsolete POPs stockpiles, proper action will often be delayed or deferred. Delaying or deferring action increases the likelihood of large scale and/or catastrophic additional releases of POPs to the surrounding environment. When this happens, there is additional, significant injury to human health and the environment (both nearby and also far away).

This additionally greatly increases the costs of subsequent POPs cleanup and destruction activities as contaminants that once were more contained become more dispersed in the environment.

In many cases, there exist disagreements in society over what constitutes appropriate and acceptable means for POPs destruction and cleanup. These disagreements can serve to greatly delay action to cleanup and destroy POPs stockpiles and sometime this allows the responsible parties to defer and avoid undertaking costly activities. The demonstration of appropriate POPs destruction technologies can help to overcome these disagreements, and can thereby help to focus attention on mechanisms to assure that the responsible parties accept their responsibilities.

The project will seek to expand the scope of ongoing, POPs cleanup and destruction activities in participating countries. It will explore arrangements that will allow the continued utilization of the deployed technology for additional destruction and cleanup of POPs stockpiles and contaminated sites within the participating countries after the demonstration activities have been completed. It will also will encourage a longer-term approach in which the demonstration activity becomes one component in the
development of ongoing and sustainable, countrywide capacity to undertake necessary waste management and cleanup activities. It will do this by including project components that explore various options for sustainability of the non-combustion technologies in each country, e.g. Build, Operate and Transfer (BOT) schemes to facilitate technology transfer, catalysing creation of new clean-up industries in the countries to address needs of industries in meeting their POPs obligations, more advanced/refined legislation and enforcement mechanism, etc.

During the PDF-C, UNIDO, as Executing Agency, will prepare Memorandum of Understanding (MOU) between the countries and UNIDO outlining the country obligations under the programme while it is running, with the hope that these would be sustained following completion of the GEF project.

This MOU will also detail possible provisions for continuing utilization of the deployed technology in the participating countries; and, if necessary, it will detail provisions for decommissioning and removing the technology in the event that it is no longer needed or wanted.

The project will seek to recruit donors/partners to expand its scope of activity to additional countries beyond the initial two. It will additionally develop and propose a suite of barriers-reduction strategies and recommendations appropriate for utilization by countries with developing economies and economies in transition that can help them achieve successful deployment of appropriate POPs destruction and cleanup technologies.

To promote and support the replicability of the project, a UNIDO-based global support systems will be developed for continued information dissemination and for facilitating deployment of non-combustion technologies in other parts of the world using the models, lessons, experiences gained in the GEF project. UNIDO's commitment to this is reflected in its co-financing of the present project. UNIDO will seek additional resources to enable the continuation of this activity following the present GEF intervention. It is expected that this will include collaboration with UNIDO's Trieste-based International Center for Science and High Technology (ICS).

12. Stakeholders involved in project:

UNIDO will execute this global “barriers reduction” Project in partnership with the agencies of participating demonstration site host governments. In the Slovak Republic, the partner agency is the Department of Solid Wastes of the Ministry of Environment; in the Philippines, the partner agency is the Environment Management Bureau of the Department of Environment and Natural Resources. Each will participate as an active member of the Project Steering Committee (PSC). For country activities, the lead role will be in the hands of the country partner government agency with UNIDO and Project Staff providing assistance and support.

It is understood that the global project will provide participating demonstration site host countries with significant and meaningful assistance in the destruction and cleanup of their current obsolete POPs stockpiles. It is further understood that demonstration activities in the participating host countries will provide to the global project, information, experiences and data, all of which are essential to the successful completion of this Project’s global “barriers reduction” mission.

The project will build on the Australian experience where public policy has been to avoid the use of incinerators for the destruction of hazardous wastes and to involve civil society in the approval and the operational oversight of selected destruction technologies. As a result, groups within Australian civil society that had vigorously opposed incineration and/or land burial of POPs-containing wastes have participated in the decisions to utilize these newer technologies, have participated in reviews of these technologies, and have generally accepted them.

The Australian experience is viewed as a “barriers reduction” model that will be adapted by this Project in regionally appropriate ways to facilitate public approval and successful utilization of certain non-combustion technologies for the efficient destruction of POPs present in obsolete chemical stockpiles, in contaminated wastes, soils and sediments. This approach means that civil society groups be given a full and early opportunity to participate in important decisions including technology and site selection,
and also be given a role in the design and implementation of operations oversight procedures and monitoring activities.

Full civil society involvement in all project elements will characterize the work from the PDF-B throughout the full project at both global and country level. This is considered to be a unique Project characteristic that is crucial to project success. It will be consistently emphasized and fully documented. Between a quarter and a third of total PDF-B and PDF-C resources will be devoted to NGO and civil society involvement across all activities of the project. Sufficient Full Project resources will also be committed to Civil Society participation.

An existing NGO, the Environmental Health Fund, is an active participant in the project. It has been a co-financer of project activities, will serve as a member of the Project Steering Committee, and will also serve as a clearing-house for the recruitment and involvement of other NGOs, both at the national and international levels.

Project Stakeholders will also include representatives of the private sector and of relevant government-owned enterprises as well as representatives of relevant sectors of the scientific and academic communities. At the global level, stakeholder groups will be involved in the development of criteria and guidelines to be used at the country level to provide guidance: in technology selection; in implementation planning; and in monitoring and oversight activities associated with technology performance and with worker and community safety. Stakeholder groups will also be involved at the global level in the production and dissemination of project information, reports evaluations, and other barriers reduction activities.

Stakeholders will be invited to participate in country-level planning activities including national NGOs with expertise and/or interest in this matter; the private sector; relevant government-owned enterprises; as well as representatives of relevant scientific and academic communities. Local or regional government entities, as appropriate, will also be encouraged to participate.

Finally, special efforts will be made to involve participation from community-based and popular organizations in or near the locale where POPs destruction and/or cleanup activities will be taking place.

Stakeholders, at the country level, will be given a role in determining the specific stockpiles to be destroyed and cleaned up in the course of the demonstration project; the application to be deployed; the site where it will operate; and other elements of the Full Project’s activities that will arise in the preparation of the national implementation workplan. Resources will be available from the PDF-B throughout the full project to provide country-based NGOs, CBOs, and other elements of Civil Society with needed and requested technical assistance, consultant services, and/or training to in order to enable and facilitate their full, confident and competent participation.

13. Information on project proposer:

UNIDO, as the specialized agency of the United Nations in industrial development in developing countries and countries with economies in transition, has participated in all those Interagency Cooperative events that led to the intergovernmental negotiations for the preparation of the Framework Convention on POPs. UNIDO participated in the first two international meetings on POPs held in Vancouver, Canada and Manila, the Philippines, held in 1995 and 1996, respectively. UNIDO also participated in the relevant meetings of the Intergovernmental Forum on Chemical Safety (IFCS) and the Inter-Organization Programme for the Sound Management of Chemicals (IOMC). UNIDO also participated in all four Intergovernmental Negotiating Committee (INC) for an International Legally Binding Instrument for Implementing International Action on Certain POPs meetings. UNIDO has accumulated significant knowledge in the pesticide sector as well as in its Cleaner Production Programme. Issues related to the unintentionally generated by-products such as dioxins and furans have also been addressed specifically, more importantly in the Pulp and Paper sector.
Finally, UNIDO through its International Centre of Science and High Technology (ICS), Trieste, Italy, has been involved jointly with UNECE in the preparation of a Compendium of Soil Clean-up Technologies and Soil Remediation Companies (2nd edition, 2000), which compendium also covers technologies for the elimination of POPs.

14. **Information on proposed executing agency (if different from above):**

During a discussion held in April 2000 between the Environmental Health Fund (EHF) and the United Nations Development Programme (UNDP), the United Nations Industrial Development Organization (UNIDO) was identified as the appropriate Executing Agency for the project based on its comparative advantages in this area.

In May 2000, the GEF Council approved to expand opportunities for executing agencies of the GEF beyond the Regional Development Banks and include UNIDO in that category. This will help increase cooperation between UNIDO and GEF, particularly in the emerging area of Persistent Organic Pollutants (POPs).

15. **Estimated budget (in US$ or local currency):**

The detailed budget for the Full Project will be determined through the Preparatory Funding process, more specifically that part of the Preparatory Funding process concerned with selection of the specific technologies, e.g. the PDF-C. However, it can be estimated that Full Project cost will range from US$ 15-18 million, with US$ 10 to 12 million from the GEF and US$ 5-7 million in co-finance. Country co-finance may be increased as information is derived as to the more exact extent of the stockpile or stockpiles to be eliminated and the extent to which the participating countries and other donors will increase their contribution to effect the destruction. It is additionally possible that the amount of overall co-finance could be expanded to an amount as high as $US 16 million or more if co-financiers can be identified to sponsor the participation of as many as two additional countries in the project beyond the participation of Slovakia and the Philippines. Personnel of the project will actively seek to recruit this additional co-finance for the participation of countries additional to the two selected for this project. The sources of co-finance, in addition to the participating countries, will likely include a growing number of countries who are establishing special bi-lateral funds for POPs related initiatives or have identified POPs as an integral part of their national funding priorities. Approaches will also be made to the respective regional development banks to seek their cooperation and participation in Full Project activities.

16. **Linkages to GEF and IA programmes and activities and coordination arrangements**

At present, the GEF POPs portfolio includes, among other things, two UNEP implemented projects namely “Assessing national management needs of Persistent Toxic Substances” and “Regionally based assessment of Persistent Toxic Substances”. Under the OP10 Global Contaminants Component, the UNDP-GEF project entitled “Removal of barriers to the abatement of global mercury pollution from artisanal gold mining” is also being executed by UNIDO.

The proposed project will complement and build upon existing GEF initiatives in the POPs area. The project also supports and complements ongoing UNDP support to environmental policy reform and civil society participation through its Country Cooperation Frameworks (CCF’s) in Slovakia and the Philippines.