



**PROJECT EXECUTIVE SUMMARY**  
**GEF COUNCIL WORK PROGRAM SUBMISSION**

**AGENCY'S PROJECT ID:** 3057  
**COUNTRY:** Philippines/Global  
**PROJECT TITLE:** Demonstration of the Viability and Removal of Barriers that Impede the Successful Implementation of Available, Non-Combustion Technologies for Destroying Persistent Organic Pollutants (POPs)  
**GEF AGENCY:** UNDP  
**OTHER EXECUTING AGENCY(IES):** UNIDO  
**DURATION:** 4 Years  
**GEF FOCAL AREA:** Persistent Org. Pollutants  
**GEF OPERATIONAL PROGRAM:** Draft OP#14  
**GEF STRATEGIC PRIORITY: POPs SP3:** Demonstration of innovative technologies and practices  
**ESTIMATED STARTING DATE:** September 2004  
**IA FEE:** \$ 382,000

| <b>FINANCING PLAN (IN US\$):</b>                          |                   |
|---|-------------------|
| <b><u>GEF PROJECT/COMPONENT</u></b>                       |                   |
| Project (incl. AOS)                                       | 4,565,000         |
| PDF A   |                   |
| PDF B   |                   |
| PDF C   |                   |
| <b><i>Sub-Total GEF:</i></b>                              | <b>4,565,000</b>  |
| <b><u>CO-FINANCING</u></b>                                |                   |
| Government of the Philippines                             | 500,000           |
| Private Industry  | 6,412,380         |
| NGO Community   | 100,000           |
| UNDP  | 100,000           |
| UNIDO   | 650,000           |
|   |                   |
| <b><i>Sub-Total Co-financing:</i></b>                     | <b>7,762,380</b>  |
| <b><i>TOTAL Project Financing:</i></b>                    | <b>12,327,380</b> |
| <b><u>Financing for associated activities if any:</u></b> |                   |
| <b>_____</b>  |                   |

**CONTRIBUTION TO KEY INDICATORS OF THE BUSINESS PLAN:** The project is the second GEF activity to address non-combustion alternatives to destroy POPs in the framework of the POPs Strategic Priority No. 3.

**RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT (S):**  
 Ms. Elisea G. Gozun Date: 7 January 2004  
 Secretary and GEF Operational Focal Point

Approved on behalf of the *United Nations Development Program*. This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for work program inclusion.

Yannick Glemarec  
 Deputy Executive Coordinator  
 UNDP/GEF  
 Date: 8 April 2004

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# 1. PROJECT SUMMARY

## a) PROJECT RATIONALE, OBJECTIVES, OUTCOMES AND ACTIVITIES

The first phase of the Global Programme to demonstrate the viability of available non-combustion technologies for use in the destruction of obsolete Persistent Organic Pollutants (POPs) stockpiles was approved by the GEF Council in May 2003. Four countries were selected to participate in the Global Programme with Slovakia constituting the focus of the first phase. The second phase of the programme, of which this Project submission is the main focus, will be located in the Philippines. The main objectives of this Project are to demonstrate the viability of available non-combustion technologies to destroy POPs, show how the barriers to the deployment of these technologies may be removed and deploy an immediately available and proven non-combustion technology to the Philippines to destroy 4,547 tonnes of PCB wastes. The Project, in line with the GEF POPs focal area strategic priorities as described in the GEF Business Plan FY04-06, will extend the activities of the first phase by carrying out demonstrations of non-combustion technologies for destroying POPs stockpiles in a developing country environment and meet the Stockholm Convention requirement to ensure the use of Best Available Techniques (BAT) and Best Environmental Practices (BEP).

The motivation for promoting non-combustion technologies arises from the environmental and health concerns related to the use of combustion systems for the destruction of POPs. High technology combustion systems equipped with sophisticated air pollution control systems (APS), that can be found in the industrialized countries of Western Europe, Japan and North America, are known to generate significant total releases of unintentional POPs in the form of dioxins and furans which are highly toxic to humans and the environment. These toxic releases accumulate in the fly ash captured by the APS device as well as in the bottom ash collected in the combustion chamber and have to be disposed of. Addition of high technology APS devices makes these types of combustion systems viable when operated on a large scale and often involves investments of well over US\$ 50 million per unit. Such high investments, coupled with the complex operating procedures make such units unsuitable for many developing countries and economies in transition.

On the other hand, newer, highly effective non-combustion technologies for the destruction of POPs have emerged in recent years and have been commercialized. Some of them have operating characteristics that make them far superior to combustion systems. These non-combustion systems can be operated economically at much lower capacities than the sophisticated incineration systems found in the developed world and many of them are relatively simpler to operate as well. These non-combustion systems are however not yet introduced in developing countries and economies in transition due to a number of barriers.

Assisting eligible countries to implement the Stockholm Convention's provisions on wastes containing POPs will require that relatively large amounts of GEF resources be directed towards the destruction of these wastes. In the majority of cases, this would entail removal and export and incineration in an industrialised country. That option, whilst pragmatic in the short run, would leave GEF recipient countries with no capacity and no long-term sustainable solution to hazardous wastes disposal. As many developing countries are at a stage where they are defining their hazardous wastes management policies and investment needs, the non-combustion programme offers a unique opportunity to utilize some of the GEF resources that would otherwise be available for POPs wastes destruction abroad, to demonstrate environmentally sustainable alternatives to POPs and other hazardous wastes disposal.

The barriers that have been identified during concept development for the Global Programme and the subsequent project preparation in the Philippines and Slovakia include:

- lack of information/technical knowledge of non-combustion alternatives;
- limited number of vendors;

- lack of sufficient infrastructure and need for capacity building;
- nature of existing regulations and standards/markets; and
- lack of regime for public policy and institutional infrastructure.

The removal of barriers that currently impede the deployment of non-combustion technologies will enable countries to address POPs destruction needs through the use of technologies that emphasize and result in high destruction efficiency, or DE, a measure that is almost never reported or calculated for incinerators, cement kilns and other combustion technologies because these devices typically fail to achieve high total destruction efficiencies. Hence the demonstration of the viability of a non-combustion technology of high DE will provide an alternative to hazardous waste incinerators of high technology combustion and equipped with sophisticated APS that would be difficult to afford in developing countries and countries with economies in transition due to several factors such as technological complexity, high investment costs and economy of scale.

Emphasis will be given to procedures that facilitate the participation of civil society and that will encourage community confidence and support for proposed destruction and clean-up activities. An important feature of the programme is the recognition that, in all regions and in many countries, groups within the civil society often have resisted proposed POPs destruction and clean-up activities using different traditional combustion technologies on the ground that they have created in many cases significant burdens in developed countries in the past, and in developing countries and countries with economies in transition even today. This resistance has often been a significant barrier to the successful execution of such proposed activities. Another major barrier is that the incineration industry has a quasi-monopolistic position in the global market, e.g. in Europe, out of 31 facilities engaged in the destruction of PCBs, 29 were incineration-based while only two applied alternative technologies in 1998.<sup>1</sup>

The STAP Technical Workshop held in Washington, D.C., 1-3 October 2003 reviewed the emerging, innovative technologies for the destruction and decontamination of POPs. The review shows that these technologies have not yet been diffused into the South East Asian developing countries though their application seems to be successful in Australia and Japan. According to available information there are only a few hazardous waste incineration facilities primarily using cement kilns in the developing countries of the region that meet some international standards, namely in Indonesia, Malaysia and Thailand. However, none of these cement kilns are regulated with respect to PCDD/PCDF releases and therefore they cannot be taken into account as an option for PCBs destruction imported from the Philippines in this project.

The technology selection process will have the most significant impact on the success of this project. Thus the key indicators for the project include the proven commercial performance of the selected technology including the environmental impact assessment, the successful transfer of this technology to the Philippines and the removal of barriers that were identified for the adoption of non-combustion technologies.

The specific Project that is the principal subject of this proposal is located in the Philippines. The Project will address PCB wastes and equipment, which are identified in the country. The majority of the stockpiles in the Philippines today are contaminated equipment like power and distribution transformers, PCBs capacitors and contaminated synthetic oil. The Project will also result in the creation of a useful case study to illustrate how to create joint GEF, Government, and private sector partnerships for future efforts that will be undertaken pursuant to the Stockholm Convention. The Project will demonstrate the use of a selected Non-combustion technology to destroy approximately

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<sup>1</sup> UNEP Chemicals: Inventory of worldwide PCB destruction capacity, First issue, 1998.

4,547 tonnes of equipment containing PCBs spread around the country and this effort will receive co-finance from both the Government of the Philippines and private industry.

The Global Programme envisages four country-specific demonstration Projects, and as such there will be need for strong coordination of the four project activities for purposes of successful replication and sustainability. This includes a continued support to the functions of the Programme Coordinator included in phase 1 of the Programme who will oversee the Non-combustion Programme that will in particular: ensure continuing development of the Project Demonstration activities in the remaining two countries, including development and finalization of project briefs that will be required for Council submission; develop the rationale for the selection of POPs waste to be treated in further demonstrations; develop the rationale for the selection of technologies to be deployed in the further demonstrations; ensure effective communication between and among the Non-combustion Demonstration Project that is the subject of this Project Brief, and, inter alia, other Stockholm Convention activities such as the Africa Stockpiles Programme (ASP), the UNEP Implemented, UNIDO Executed NGO Capacity Building medium-sized project (MSP), and Enabling Activities in the country and the region as well as STAP; and generally serve as a clearinghouse for information related to Non-combustion technologies and the potential for their deployment to destroy obsolete POPs stockpiles and potentially address continuing, industrially related streams of POPs contaminants.

The Project that is the direct subject of this Project Brief will:

- oversee the day-to-day operations of the second Non-combustion Demonstration Project in the Philippines and, overall, be responsible for its effective implementation;
- assure effective coordination between and among the different actors including the Implementing Agency (UNDP), Executing Agency (UNIDO), the principal cooperating agency - the Environmental Health Fund (EHF), the Government of the Philippines, the technology vendor, the private sector entity responsible for the day-to-day destruction operations of the targeted PCB wastes, and Civil Society;
- assure the requisite level of on and off-site training for all personnel related to the Project;
- use international tendering for the technology selection and national bidding for the selection of operating entity and the local transporting company, adapt the technology for selected hazardous wastes other than PCBs and regional diffusion and possible transfer of the technology;
- consider during the project implementation exit strategies for the project, taking into account the final ownership of the hardware and technology, and various possible arrangements between the Government and counterpart entity involved, such as exploring the "buy back" option. In this regard, a business plan with detailed financial and socio-economic analysis will be prepared during the appraisal stage which will specify details of the implementation arrangements between the Government and the counterpart entity, the operating costs, work plan as well as the financial projections and capital cost recovery of the demonstration facility;
- ensure that the requisite level of monitoring and evaluation of project results is undertaken and properly disseminated; and
- serve as the principal day-to-day link to the Programme component.

The principal outcomes of this project will be improved capacity for environmentally sound management of POPs, transfer of non-combustion POPs destruction technology to the Philippines and destruction of 4,547 tonnes of PCB equipment, project effectively monitored, evaluated and disseminated and mechanisms in place to facilitate project replication and sustainability and increased regional cooperation in the implementation of the Stockholm Convention.

**b) KEY INDICATORS, ASSUMPTIONS AND RISKS (FROM LOGFRAME)**

In addressing the issue of technology selection, the preparatory phase involved convening a meeting of the Technical Advisory Group (TAG) in Manila to advise on the most appropriate approach. The TAG *recommended* that, in preparing for final technology selection, consideration should be given to:

- the flexibility of any destruction system to deal with the range of POPs and POPs matrices likely to be encountered in the Philippines – and possibly other materials exhibiting POPs characteristics, or giving rise to wastes or releases exhibiting POPs characteristics;
- the commercial viability of any destruction system, taking into account both its capital and operating costs in providing a service meeting local market needs; and
- the transferability of any destruction system, taking into account the range of services – licensing, engineering, training, compliance testing etc., available from the technology provider.

The TAG *considered* that final selection should be based on the consideration of submissions from technology providers in response to a published detailed specification prepared by the Project. Such a specification would need to consider both the programme criteria and related indicators, and the nature of the wastes to be destroyed in the Philippines. It would also need to provide guidance on local costs – for example, unit charges for inputs, and an explicit statement of how any prequalification or tendering exercises would be assessed.

The TAG *recognized* that final technology selection via a formal tender exercise and contracting exercise could only take place after GEF CEO approval of the Project Document when funds had been transferred to UNIDO. These recommendations are very closely in line with those of the STAP technical workshop held in Washington DC, 1-3 October 2003.

On the basis of the work undertaken by the TAG thus far and of the STAP workshop, bids would be invited from vendors of Base Catalysed Decomposition (BCD), Gas Phase Chemical Reduction (GPCR), Sodium Reduction and Super-Critical Water Oxidation (SCWO) technologies.

Key assumptions include:

- Government, public and private sector and Civil Society commitment to deployment of Non-combustion Technologies;
- Project strategy is appropriate to facilitate removal of barriers identified in the Programme and Project;
- Properly selected technology will be sustainable in the Philippines; and
- Successes of the project in the Philippines are able to translate into more global and regional applications.

The principal risks that have been identified include:

- the possibility that the non-combustion technology will not perform consistent with its design specifications and expectations;
- the Project will not be sustainable for financial and other reasons beyond the life of the GEF intervention;
- the possibility of inadequate or ineffective Stakeholder participation; and
- the possibility of a negative environmental impact analysis.

## **2. COUNTRY OWNERSHIP**

### **a) COUNTRY ELIGIBILITY**

Eligible under para. 9 (a) of the GEF Instrument; Philippines is a signatory to the Stockholm Convention and has ratified the Convention.

b) COUNTRY DRIVENNESS

The Philippines has been a full partner during each step of the Preparation process. The Government has been instrumental in securing the productive participation of the counterpart entity that is central to Project Outcomes and Activities, has participated fully in, and been instrumental in assisting in the organization of the many Civil Society centered activities during preparation, and is facilitating the necessary Environmental Impact Assessments that will need to be undertaken during the early stages of Project implementation.

The "Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990" that is the Department of Environment and Natural Resources (DENR) Administrative Order (DAO) No. 29 Series 1992, Implementing Rules and Regulations (IRR) of Republic Act 6969 (Annex 7 of the Project Brief) and the "Chemical Control Order (CCO) for polychlorinated Biphenyls (PCBs)" that is the Philippine Chemical Control Order, DENR Administrative Order No. 1 Series 2004 (Annex 6 of the Project Brief) in fact ban the incineration and import of PCBs in the Philippines. The relevant sections of the legislation are as follows:

- The CCO in Section IV, Item 3 stated that "The commercial and industrial owners and operators must comply with the requirements for transport, storage and disposal specified under Title III of the IRR for transportation, storage and disposal of PCB wastes."
- The IRR under Title III, Section 30, in Table 3 listed "commercial or industrial hazardous waste incinerator", but these do not exist in the Philippines.
- The CCO in Section IV, Item 6.1b. stated that "All treatments and disposals must be approved by the Bureau and should be in conformance with RA 8749 otherwise known as the "Clean Air Act of the Philippines". The referred Section 20 of RA No. 8749 bans the use of incineration, which process emits poisonous and toxic fumes (see in Annex 8 of the Project Brief: Memorandum of understanding between DENR and stakeholders).
- The CCO in Section V, Item 1b. stated that "All importation, sale, transfer or distribution of PCBs, PCB equipment, PCB-contaminated equipment, PCB wastes, PCB articles or PCB packaging shall no longer be allowed".
- The CCO in Section IV, paragraph 6.2 stated that "If necessary, wastes containing high levels of PCBs must be exported in accordance with the provisions of Section IV Item 6.1b of this Order and must meet the requirements for transboundary movement of wastes under the Basel Convention".

DENR jointly with the most important stakeholders signed a Memorandum of Agreement (MoA) in 2002 with the Department of Energy, the National Power Corporation, the National Electrification Administration, Manila Electric Company (MERALCO), the Industrial Technology and Development Institute of the Department of Science and Technology, and the representative of Public Interest NGO Community aiming at providing a strong commitment by the signatories to pursue the project. As a result of this MoA, the Petrochemical Development Corporation (PPDC) of the Philippine National Oil Company (PNOC) agreed to provide, from its own resources and from the operating entity, a significant co-financing to the project using a non-combustion technology for destruction of PCBs stockpiles in the country amounting to US\$ 6,412,380. PPDC will provide the project site where the technology will be located and operated. The operating entity will be decided through local tendering process. The ownership of the equipment will also be decided at the end of the demonstration project through a transparent bidding process. Any revenues that will be realized through this transfer of ownership will be used to support future phases of the Global Programme.

### 3. PROGRAMMES AND POLICY CONFORMITY

#### a) FIT TO GEF OPERATIONAL PROGRAM AND STRATEGIC PRIORITY

The project is consistent with the proposed OP#14 and with the POPs Strategic Priority No. 3 "Demonstration of innovative technologies and practices".

The project has been designed in full conformity with GEF policies and programme guidelines. It is built upon a partnership between and among the Implementing and Executing Agencies (UNDP and UNIDO respectively), the Government, the Private Sector, and enjoys the strong support of Civil Society at local, national, regional, and international levels.

#### b) SUSTAINABILITY (INCLUDING FINANCIAL SUSTAINABILITY)

Project sustainability and commitment will be assured through the use of:

- The creation of Partnerships between and among the national government, the private sector and Civil Society;
- Significant Private Sector Investment;
- Country driven framework for a legislative and regulatory regime consistent with the provisions of the Stockholm Convention;
- Strong Civil Society participation and advocacy at the national, regional and global levels;
- Strong linkages with GEF and other related Stockholm Convention and STAP activities such as the Enabling Activities at national and regional levels and other projects of POPs Strategic Priority No. 3 - "Demonstration of innovative technologies and practices";
- Evidence of continuing, profitable deployment of the capital equipment beyond the life of the GEF Project intervention; and
- Promote and pursue the diffusion/transfer of the selected technology regionally.

The Project delineates clearly the strong level of Partnership between and amongst the GEF, the Government of the Philippines, the private sector through the investment at PPDC site and Civil Society. Strong evidence of this can be found in all Project Outcomes. The extent and significance of Private Sector Investment will be further described in the Financial Sustainability segment below. The Project makes generous provision for strong, continuing Civil Society participation in Project Implementation activities and builds upon the strong support for the Project that was created during Preparation. Evidence of the continuing commitment to strong Civil Society Participation and Advocacy in Project activities, an essential ingredient to strengthening community level support and thus sustainability for the Objectives of the Project, can be found throughout the Activities to achieve Outcome 3. Strong linkages to other projects described above will ensure best efforts to generate replicability of project results in other countries.

#### **Financial Sustainability**

In addition to the GEF investment for the deployment of Non-combustion capital equipment to the Philippines, the Government of the Philippines in partnership with PNO Petrochemical Development Corporation (PPDC) have committed over US\$ 6.412 million to the designated 4,547 tonnes targeted stockpile of PCB contaminated wastes and equipment in the demonstration area in the Philippines. It is estimated that these equipment contain about 1,350 tonnes of PCB oils and contaminated synthetic oils.

As the full capacity of the destruction unit is 300 tonnes per year, these 1,350 tonnes would ensure that the destruction facility, which is projected to process between 150 - 270 tonnes per year, would be sustainable for a minimum of 6 years. Sustainability will be further enhanced by the fact that the PPDC, in partnership with the Government, will be assuring a flow of PCB products and other POPs contaminated materials to the destruction unit over the seven to eight year period as stockpiles are

further identified through the inventories underway in the context of the POPs enabling activities. Beyond this period, PPDC/PNOC could be looking to utilize the plant for continued destruction of PCB and general POPs and that of persistent toxic substances. This would be the basis of bidding for the capital equipment.

The Project Brief uses an estimate of US\$ 5,000/tonne that is the average costs of PCBs export per tonne for the baseline calculation. According to the expert's estimate, the PCBs destruction by a selected non-combustion technology is US\$ 3,500 per tonne taking into account the equipment purchase and operating costs. Based on this estimate, the non-combustion technology will be able to compete with PCBs exports for incineration.

In summary, the project will put in place a technology with the capacity to destroy 300 tonnes per year of PCBs and other POPs contaminated products, and the project has identified and plans to destroy some 4,547 tonnes of PCB equipment containing 1,350 tonnes of PCB and PCB-contaminated oils. During the Project appraisal stage, a detailed business plan will be prepared to further define and ensure financial sustainability based on realistic assumptions and conditions as was done for the Slovakia Project.

The original concept of the demonstration project aimed at the destruction of at least 1,000 tonnes of PCB transformers. However, based on the early experiences gained in preparation of the business plan for Slovakia, financial sustainability of the operations in the demonstration project can only be achieved if the total existing PCBs stockpile would be eliminated. In light of this, the total tonnage to be destroyed is 4,547 tonnes. The baseline scenario is defined to include 800 tonnes of PCBs equipment in the four-year demonstration phase as an average of 200 tonnes are exported each year. As it is not feasible to give precise costs calculation and analysis of the equipment and operating costs before commencing the project, the exact current costs for destruction of the PCBs stockpiles can only be determined after final technology selection. But the final costs analysis can be done only after the completion of the demonstration project. The demonstration project aims at the comparison of the costs of applying a selected non-combustion technology to those of the traditional hazardous waste incineration, as the findings of the STAP technical workshop show the investment and operating costs experienced in the industrialized countries cannot be applied directly in a developing country or an economy in transition. As the operating capacity of the equipment to be selected in the Philippines is 300 tonnes per year contrary to the higher capacity equipment in Slovakia (1,000 tonnes per year) the costs, though not linearly, are lower and in line with the STAP technical workshop review that gives a bottom line estimate of US\$ 5 million for the construction of a pilot plant. This figure is at least one magnitude lower than the costs of the smallest but still financially viable hazardous waste incinerator of one kiln.

#### c) REPLICABILITY

Replicability will be assured through a number of the specific activities. These include developing a Asia and Pacific regional approach to the use of Non-Combustion technologies; the implementation of two Workshops in different development regions stressing the advantages of a Non-Combustion approach to POPs destruction, including the dissemination of project results; the preparation and distribution of Operational Manuals; the provision of technical advice and other Programme and Project related information to public and private sector entities; arranging visits of government officials and key elements of Civil Society to the Philippines demonstration site to learn about and witness the demonstration activity; and disseminating Programme and Project related information and results through a dedicated Programme and Project web site.

The replicability would be assured by a regional approach that has been adopted in the Project Brief with a view to develop a programme on environmentally sound management of POPs in Asia and the



Pacific including the issue of non-combustion technologies for POPs destruction. As a first step in this direction, the project will develop a close coordination and cooperation with the Swiss Government funded and UNIDO executed second phase of the Cleaner Production Programme aiming at destruction of POPs stockpiles in Vietnam.

#### d) STAKEHOLDER INVOLVEMENT

Stakeholder participation has been a unique and successful feature during Project Preparation, and will continue to be a major feature of the Full Project. The Project will stress participation within the Philippines, and will also sponsor regional workshops to disseminate project information and results of the destruction activity in the Philippines.

The initial PDF-B called for the establishment of a consultative process among government officials and relevant stakeholders to develop planning process guidelines and secure commitment by government agencies, business groups, and other affected stakeholders to select, deploy, and monitor POPs destruction technologies. This initial process has resulted in five multiple consultations in the Philippines regarding the eventual deployment of the most effective and appropriate non-combustion technology to address the targeted stockpile. Stakeholder involvement in the Philippines will be included as part of the Environmental Impact Assessment that will be undertaken by the Philippine Government. The project will also support expanded activities at the regional and global level.

#### e) MONITORING AND EVALUATION

Programme and Project Objectives, Outcomes and Activities and information and data about technology performance will be evaluated annually by the Project Steering Committee as well as through the Programme Advisory Committee. All elements of the Programme and Project will also be the subject of the various monitoring and evaluation mechanisms of the Implementing Agency, the UNDP, and the Executing Agency, UNIDO within the framework of the GEF M&E system. This will include periodic supervision missions, Quarterly Reporting, the Annual Project/Program Review/Project Implementation Review (APR/PIR), the Tri-Partite Review (TPR), a Mid-Term Evaluation, and an external Evaluation and Final Report prior to the end of the first Project in the Philippines.

Particular emphasis will be given to Civil Society participation in the technical and other aspects of Programme and Project monitoring and evaluation (see Activity 3.2). All stakeholders will be given access to the data on DE that is collected in real time, and elements of Civil Society will be invited to directly observe the real time evaluation of DE as well as participate directly in the formulation of the planned development of the necessary monitoring protocols and evaluation framework (see Activity 3.1 & 3.3).

The mid-point Project Review (which would occur after the actual stockpile destruction has commenced) would focus on destruction performance and efficiency, and would emphasize identification for dissemination of lessons learned from Programme and Project experience to date, including lessons about project design, implementation and overall management both at the Project and Programme levels. The final evaluation would focus on similar issues but will give strong emphasis to the potential for Project impact beyond the initial demonstration country. Recommendations for follow-on activities would be included in each of these review processes.

As important as the undertaking of effective and thorough Monitoring and Evaluation will be for the Programme and Project, the effective communication of the results of these activities is equally important. This will be accomplished by making certain that ongoing M&E results are included on the agendas of planned workshops and also posted on a regular basis on the Programme and project dedicated Web site.

#### 4. FINANCIAL MODALITY AND COST EFFECTIVENESS

##### a) FINANCIAL MODALITY

Managerial responsibility for the finances of the Programme and Project will be the overall responsibility of the Implementing Agency, the UNDP, and specifically the responsibility of the Executing Agency, UNIDO. Although the GEF Council has granted UNIDO direct access to GEF resources in the industrial aspects of POPs, UNDP and UNIDO have agreed to continue this arrangement in this Project Brief so as to provide continuity to significant project preparatory and coordination activities that started prior to UNIDO being granted direct access.

Throughout the preparatory and formulation phase (PDF) of the project, UNIDO has worked in very close coordination with the Department of Environment and Natural Resources (DENR) of the Philippine Government, the Petrochemical Development Corporation of the Philippine National Oil Company (PPDC), main waste owners including Manila Electric Company (MERALCO), National Power Corporation (NAPOCOR), National Transmission Corporation (TRANSCO) and the local NGO community. This type of close cooperation and coordination has made project activities very cost effective and this arrangement also will be continued during the full Programme and Project implementation.

The suitability of a non-grant instrument as modality for GEF financing was considered during the project preparation. It was judged that the perceived risks of the project were too high to attract private sector finance without the use of grant funding. While the prospect of the profitability of the technology is seen as high over the long-term, the barrier removal nature of the Programme and Project and the intent of deriving clear global benefit as a result of its implementation led to the conclusion on the part of the Implementing and Executing Agencies that the grant financing approach was the most appropriate avenue.

The financial modality will govern the appropriate and efficient management of co-financing (both cash and in kind). At the time of this submission a 1:1.7 co-financing could be assured and documented. The co-financing has a higher ratio than that of the Slovakia project that can be explained with the lower level of grant financing. Efforts to raise further co-financing will be continued.

| <b>Co-financing Sources</b>                                  |                     |                  |                  |  |
|--|---------------------|------------------|------------------|--|
| Name of Co-financer (source)                                 | Classification      | Type             | Amount (US\$)    | Status   |
| Government of the Philippines                                | Government          | In-kind          | 500,000          | Letter attached in annex                             |
| Private Industry: PNOC Petrochemical Development Corporation | Private sector      | Cash and in-kind | 6,412,380        | Letters (of commitment and intent) attached in annex |
| NGO community  | NGO                 | In-kind          | 100,000          | Confirmation pending                                 |
| UNDP   | Implementing Agency | In-kind          | 100,000          | Confirmation by signing Executive Summary            |
| UNIDO  | Executing Agency    | In-kind          | 650,000          | Confirmation by formally submitting Project Brief    |
| <b>Total Co-financing</b>                                    |                     |                  | <b>7,762,380</b> |  |

## b) COST EFFECTIVENESS

The STAP technical workshop held in Washington, D.C., 1-3 October 2003 reviewed the emerging, innovative technologies for the destruction and decontamination of POPs and gave an experts' estimate on the costs of innovative technology development. It has been estimated as high, at US\$ 0.5-1 million for delivering proof of concept, US\$ 5 million for construction of a pilot plant, and US\$ 10-100 million in ventures capital for a full-scale plant. This figures can only be used as an indication particularly it does not give a range of costs for a pilot plant. But it should also be noted that the investment costs of the hazardous waste incinerators are dwarfing those of non-combustion technologies. With regard to timelines for new technology development, the workshop agreed that they are 3-4 years for research to pilot scale, another 3-4 years for pilot scale to near commercialization, and 5-7 years for near commercialization to commercialization. The STAP technical workshop documents are available on its web site ([www.stapgef.unep.org](http://www.stapgef.unep.org)). These estimates are very close to those of this project.

The investment and running costs of the selected technology in relation to its destruction efficiency (DE) will be determined through this demonstration project. However, other technologies that have not been selected would not open up their books due to intellectual property rights and commercial confidentiality. Therefore the information on the technologies published in the proceedings of the STAP technical workshop is of great importance. This information based on experts' opinion may well motivate vendors to invest in new projects.

The issue of cost effectiveness at this stage of the project development can be addressed by comparing the cost of export to Europe that, depending on the actual market situation, can be prohibitively high, in some instances over US\$ 10,000 per tonne of PCBs waste. Due to the intellectual property rights and the confidential nature of trade related information of the non-combustion technologies one can only estimate the real costs of the project based on data teased out from technical literature and experts' opinion. The costs presented in this project are based on such estimates and giving special considerations to the transfer and application of these technologies in the Philippines. These considerations, in line with the recommendations of STAP technical workshop, include:

- Complexity of the conditions and situation of the site and stockpile;
- Hazards of incomplete removal and destruction;
- Environmentally sound management;
- Implication of transfer of a single technology;
- Characteristics of stockpile sites;
- Logistics of application of non-combustion technology;
- Comparative criteria;
- Adaptation of non-combustion technology: performance, costs, input wastes;
- Adaptation of project site to the technology: resource needs, costs, environmental impact, industrial and occupational hazards, constructability, output waste, type and quality of matrices, capacity building needs.

Based on the above considerations and due to the fact that the preliminary inventory has identified a larger than originally foreseen PCBs stockpile, the cost effectiveness of the project seems to be positive. Furthermore, the cost-effectiveness of the GEF investment is assured considering that with a GEF investment of \$4.565 million to destroy 4,547 tonnes of PCB equipment the average cost of \$1,004 per tonne is well below the current average cost of export to Europe for incineration which stands at the average of \$5,000 per tonne. In addition, the potential of diffusing the technology in the region provides an additional positive element to the cost effectiveness of the project and lowering the risk of GEF grant financing.

## 5. INSTITUTIONAL COORDINATION AND SUPPORT

### a) CORE COMMITMENTS AND LINKAGES

#### **Commitment of the Philippines**

The Philippines has signed and ratified the Stockholm Convention on POPs. The Government of the Philippines has been a full and active partner during Project Preparation and has been consistently supportive of the need to deploy technologies that take a Non-Combustion approach to the destruction of POPs. The Philippine Government has ensured a high level of communication between the Non-Combustion Project and work being undertaken in its Enabling Activity. The Inventory work being undertaken as part of the Enabling Activity grant, and the results of that Inventory work, will yield additional inventories of contaminated material that can be addressed by the deployment of the selected Project technology. Philippines has been, and will continue to be an active advocate of the Programme and the Project beyond its borders.

### b) CONSULTATION, COORDINATION AND COLLABORATION BETWEEN IAS, AND IAS AND EXAS, IF APPROPRIATE.

The Programme and Project will be establishing close working linkages with the World Bank implemented Africa Stockpiles Programme (ASP), the UNEP MSP for NGO Capacity Building in Stockholm Convention related activities, and other Stockholm Convention related activities. These working linkages will result in strong levels of collaboration between and among the UNDP, UNIDO, the World Bank, UNEP, STAP, FAO, WHO, UNIDO International Centre for Science and High Technology (UNIDO-ICS) and Civil Society at local, national, regional and global levels.

### c) PROJECT IMPLEMENTATION ARRANGEMENT

The UNDP will be the Implementing Agency for the Programme and the Project. The UNDP has and will continue to use its comparative advantage in capacity building, employ its country offices to assist in the critical function of coordinating the array of Civil Society and other stakeholder activities envisaged in the project and already implemented in the preparation (PDF-B) phase.

UNIDO will continue as the Executing Agency. UNIDO is well positioned to act as an effective executor of project activities based on its comparative advantages in this area. At its 1997 Forum II meeting, IFCS "invited the United Nations Industrial Development Organization (UNIDO) to consider carrying out pilot projects". UNIDO directly accessed PDF-B funds consistent with its role as a GEF Executing Agency with Expanded Opportunities by virtue, of its comparative advantage in the POPs area. Although the GEF Council at its meeting in November 2003 granted UNIDO direct access to GEF resources, both UNIDO and UNDP have agreed to continue their collaboration in this Project as both agencies collaborated in the preparatory work done at the PDF-B stage. 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, through the Pure and Applied Chemistry Programme of UNIDO International Centre for Science and High Chemistry (ICS), Trieste, Italy has been involved jointly with UNECE in the preparation of a Compendium of Soil Clean-up Technologies and Soil Remediation Companies (2<sup>nd</sup> edition, 2000), which compendium also covers technologies for elimination of POPs. The representative of ICS is a member of the Technical Advisory Group (TAG). Lastly, UNIDO has assumed responsibility for implementation of a significant number of POPs Enabling Activities globally, and these Enabling Activities, given that they all will have to address the destruction of POPs stockpiles, will have direct linkage to the proposed project.

The Environmental Health Fund (EHF) will serve as a principal cooperating Agency for specific elements of the Project and the Programme. In this role, the EHF will continue to serve as a clearing house and coordinating mechanism for involvement of the NGO community in both the Programme and individual Projects. The EHF has already contributed substantially to project development during PDF-B implementation. During Project preparation, EHF was instrumental in securing broad Civil Society involvement in, and generating support for, the objectives and activities of the proposed Project, and is willing to continue in that role during Full Project implementation. The role of EHF will be the subject of an MOU to be concluded between UNIDO and EHF that will provide details of services that the latter will undertake in support of the Programme and Project.

The Programme will receive oversight and policy direction from a Programme Advisory Committee (PAC), for example the burden of selection of appropriate technology(ies) will be shared with the relevant international agencies who will be members of the PAC. The PAC will initially be comprised of eleven members, and meet not less than twice during the duration of this Project. More specifically, members of the PAC will include a representative from the Philippine Government, a representative from the Slovakian Government, a representative of the Implementing Agency (UNDP), a representative of the Executing Agency (UNIDO), one member from the EHF, a Civil Society representative, and one representative each from the UNEP Chemicals, the World Bank, FAO and Basel Convention. The Programme Coordinator will serve on the PAC ex-officio, as well as the Project CTA. The PAC will meet at regular intervals during Project implementation and will be called upon as necessary by the Programme Coordinator, in consultation with UNDP and UNIDO, for policy advice and direction. The PAC may at anytime act to increase its membership, as it deems necessary. The PAC will be instrumental in assuring, among other things, necessary linkages between and among related projects both within and outside the GEF.

There will also be Project Steering Committee (PSC) for the Philippine project. The PSC shall meet at least three (3) times during project implementation, and may be convened as necessary at the call of the Programme Coordinator in consultation with UNIDO, UNDP-Philippine and the Project CTA. The PSC shall be initially comprised of eight members. They will include a representative from the Philippine Government, a representative of PPDC/PNOG, and one member each from the Implementing Agency and Executing Agencies, one member from the EHF, and one member chosen to represent Civil Society interests in the Philippines. The Programme Coordinator and Project CTA will be ex-officio members of the PSC. The general function of the PSC will be to monitor overall progress during the Philippine Project implementation, make recommendations regarding ways in which the Project could be more effectively implemented, identify lessons learned, problems encountered, and generally assist the Programme Coordinator and CTA on any and all matters related to implementation of the Demonstration Activity in the Philippines. The PSC may also at anytime act to increase its membership, as it deems necessary.

There will be a Technical Advisory Group (TAG) continuing its role from the PDF-B project. The TAG will also meet at least two (2) times during Project implementation. The TAG will undertake an advisory role in service of the work of the Programme and Project, most specifically as an advisory body to the PAC and PSC. The TAG will meet at the call of the Programme Coordinator in consultation with the Implementing and Executing Agencies and the Project CTAs. Meetings may be held at specific locations or may be convened through teleconferencing as deemed appropriate and necessary. The TAG will serve as a primary vehicle for the continuation of non-combustion technology assessment, as a reviewer of the technical aspects of the Project during implementation, and in general as an Advisor to the Programme and project on all matters of a scientific and technical nature. The TAG will be comprised of one member of the Implementing Agency, one member from the Executing Agency, one member from the EHF and scientific and technical expertise as deemed necessary,

drawing from resources such as the GEF/STAP, FAO, World Bank, UNEP and UNIDO-ICS. One representative of each participating country of the Programme will also be member of the TAG.

The project will be implemented on premises provided by PPDC. In addition to land, PPDC (as a public entity) will provide counterpart personnel, office space, various office equipment and supplies and infrastructure. PPDC will invite bids from Philippine private sector companies for operating the non-combustion unit over the demonstration period. Upon completion of the demonstration project, ownership of the capital equipment will be transferred to PPDC, the operating entity or any other private sector company in the Philippines or in the Asian region on bidding basis with priority option to be granted to PPDC and the Philippine operating entity. Any revenues that may be realized through this transfer of ownership will be used to support future phases of the Global Programme.

## **Annex A: INCREMENTAL COST ANALYSIS**

### **Regional Context and Broad Development Goals**

Stockpiles of POPs and accumulations of obsolete POPs in developing countries and countries with economies in transition pose a potentially serious threat to the environment and human health. They may be poorly managed and stored in facilities with inadequate measures to prevent releases to the environment and surrounding communities. PCBs, a principal subject of the Stockholm Convention and the initial targeted contaminant of the Project and Programme, are especially ubiquitous, and PCB wastes are being found in any country that has a long established power grid, and in countries that fabricated PCBs or PCB-containing equipment and products.

The removal of barriers that currently impede the deployment of non-combustion technologies will enable countries to address POPs destruction needs through the use of technologies that emphasize and result in high destruction efficiency, or DE, a measure that is almost never reported or calculated for incinerators, cement kilns and other combustion technologies because these devices typically fail to achieve high total destruction efficiencies. Even Class 4 hazardous waste incinerators of high technology combustion and equipped with sophisticated air pollution control systems (APS), that can be found in some Western European countries and in North America, generate significant total releases of unintentional POPs. Even if a regulatory value of 0.1 ng TEQ/Nm<sup>3</sup> is strictly enforced, a Class 4 facility may release 0.75 ng TEQ into air and 30 ng TEQ into fly ash per kg of hazardous waste incinerated. Hence, the demonstration of the viability of a non-combustion technology of high DE will provide an alternative not only to hazardous waste incinerators of high technology combustion and equipped with sophisticated APS that would be difficult to afford in developing countries and countries with economies in transition but different other combustion technologies that are unfortunately still applied for hazardous waste disposal in many developing and transition economy countries. Thus, the creation of viable, non-incineration approaches to POPs destruction results in a global benefit through improved destruction efficiency and yields a corresponding environmental benefit.

The Non-Combustion Programme and second country specific Project in the Philippines is a Global initiative aimed at removing or reducing barriers to the deployment of Non-Combustion technologies to destroy POPs stockpiles in developing countries and countries with economies in transition, and will therefore lead to the further adoption and effective implementation of these available technologies. The Programme and Project have been significantly driven and supported by international NGOs (among others the Environmental Health Fund and the International Pesticides Elimination Network, or IPEN), the UNIDO, and UNDP. The Global Environment Facility began its Preparation support for the Programme and Project originally under Operational Programme #10, the Contaminants-Based Operational Programme. As the GEF has now been designated as the Interim Principal Financial Mechanism for the Stockholm Convention, the Programme and Project will become part of the POPs focal area.

The Programme and first Project in Slovakia were approved by the GEF Council in May 2003. This submission which focuses on the Philippines is part of the Global Programme which will result in cross-programmatic benefits for the GEF. Linkages are being established with POPs Enabling Activities in the target countries. This cross-linkage is particularly evident in the Philippines where preparation activities for this Project have been explicitly considered and where synergistic linkages have resulted. Project sustainability has been strengthened by linking the Project into the work of Enabling Activity Inventory development, and stockpiles additional to the targeted 4,547 tonnes stockpile of PCBs are and will continue to be defined as part of Enabling Activity work, and will be channelled as appropriate to the planned destruction unit for treatment. Last, the Programme and Project will yield an additional Regional and Global benefit by creating direct linkages with related GEF Projects such as the Africa Stockpiles Programme and the UNEP implemented and UNIDO executed MSP aimed at NGO capacity

building that is under implementation. Direct linkages with other GEF Projects and related programmes will be actively sought and developed.

The barriers that have been determined to exist and have been explored during Project Preparation would likely not be overcome or even addressed were it not for the existence of a GEF Programme and Project. Lack of information and technical knowledge regarding Non-Combustion Technologies, the nature of existing regulations and standards, and the lack of a regime for public policy and institutional infrastructure, all consistent with, and arguably necessary to realization of the Stockholm Convention requirement, to encourage best available techniques, that "...priority consideration should be given to alternative processes, techniques or practices that have similar usefulness but which avoid the formation of such chemicals." Reduction or removal of the barriers listed above and described in the proposed Programme and Project would assist in realizing such a "priority consideration."

Given the very high levels of Destruction Efficiencies (DEs) of the selected alternative technologies, with DEs approaching 100%, the Programme and Project will significantly facilitate realization of the objective of Article 6, Section (d) (ii) which states, in part, that releases from stockpiles and wastes be "Disposed of in such a way that the persistent organic pollutant content is destroyed or irreversibly transformed so that they do not exhibit the characteristics of persistent organic pollutants."

Discussions aimed at defining Best Available Techniques as referred to in Annex C (Unintentional Production) of the Stockholm Convention, are at the beginning stages. Notwithstanding the preliminary nature of these discussions, the Programme and Project will yield interesting and likely useful information in relation to the Stockholm Convention requirement in Part IV, Section B., (b), that "When considering proposals to construct new facilities or significantly modify existing facilities using processes that release chemicals listed in the is Annex, priority should be given to alternative processes, techniques or practices that have similar usefulness but which avoid the formation and release of such chemicals."

The Programme and Project are also consistent with Article 12 of the Stockholm Convention wherein the Parties recognize the need to make render timely and appropriate technical assistance to developing countries and countries with economies in transition. Most specifically the Programme and Project is responsive to Article 12, Section 4 that states, inter alia, that "Parties shall establish, as appropriate, arrangements for the purpose of providing technical assistance and promoting the transfer of technology to developing country Parties and Parties with economies in transition relating to the provisions of this Convention."

The proposed, extensive Civil Society consultations and other communications envisaged as part of the Programme and Project will give very broad visibility to, and enhance prospects for successful replication of, Programme and Project results at Local, National, Regional and Global levels. These extensive consultations will make possible addressing and reducing or removing the barriers that have been identified for the initial Project country. In this sense the Programme and Project is fully consistent with all provisions that are the subject of Article 10 of the Convention, titled Public information, awareness and education. Indeed, the Programme and Project can serve as a model for future attempts to realize the objectives of this particular Convention Article.

### **Baseline**

The total baseline of US\$ 4,000,000 is comprised of the baseline activities which currently involve exports of PCB equipment for incineration in Europe at an average costs of USD 5,000 per tonne. On average 200 tonnes are exported each year and over the project period some 800 tonnes would have been exported without this GEF intervention



## The GEF Alternative

The GEF alternative very likely provides the only possibility that very promising and already available and demonstrated alternative technologies to incineration can be sustainably deployed. For this Global Demonstration Programme and associated Project, a substitutional (vs. complementary) Incremental Cost approach has been used. Rather than spend the US\$ 4,000,000 on exports for incineration, the Philippines will substitute the use of the selected Non-Combustion technology for this purpose, and thus this amount becomes Project co-finance. In actuality, the Philippines is contributing in excess of its baseline of US\$ 4 million; the total amount of Philippines co-finance is US\$ 6,412,380. It should be noted however that the GEF alternative allows for a significant acceleration of the plans to destroy a far larger quantity of PCBs than would be possible under the current situation, as it is unlikely that the Government would have been in a position to declare it a priority in the immediate future, were it not for the opportunity created by the GEF alternative.

Under the GEF funded alternative the environmentally sound destruction of the stockpile by using a non-combustion technology will be the dominant Programme and Project objective. Extensive Local, National, Regional and Global Civil Society participation will also receive considerable GEF funding. There would also be GEF support and co-finance for Programme and Project Coordination, Capital Equipment Purchase and associated expenditures, Effective and Specific Actions to ensure successful Project Replication and Sustainability, and Donor Recruitment.

More specifically, the GEF Alternative (GEF contributions and co-finance) would provide US\$ 1,130,000 for Programme and Project Coordination; US\$ 9,787,380 for Capital Equipment Purchase and Deployment and Operation of the Capital Investment; US\$ 810,000 for Effective and Specific Actions to Ensure Project Replication and Sustainability (Capacity Building); and US\$ 600,000 for promoting a regional approach on Non-combustion technologies with full civil society participation.

## Summary Incremental Cost Matrix

| Component                   | Baseline  | Alternative | GEF       | Co-finance | Increment  |
|-----------------------------|-----------|-------------|-----------|------------|------------|
| Programme                   | 0         | 1,130,000   | 800,000   | 330,000    | 1,130,000  |
| Equipment & Operating costs | 4,000,000 | 9,787,380   | 2,995,000 | 6,792,380  | 9,787,380  |
| Replication                 | 0         | 810,000     | 435,000   | 375,000    | 810,000    |
| Regional approach           | 0         | 600,000     | 335,000   | 265,000    | 600,000    |
| Total                       | 4,000,000 | 12,327,380  | 4,565,000 | 7,762,380  | 12,327,380 |

## ANNEX B: PROJECT LOGICAL FRAMEWORK

| Intervention Logic   | Objectively Verifiable Indicators   | Sources of Verification   | Assumptions and Risks  |
|--|---|---|--|
| <b>Overall Objective</b>   |   |   |  |
| <p><u>Long Term Objective:</u><br/>Demonstrate the viability of available Non-combustion technologies to destroy POPs.</p> <p><u>Mid-Term Objective:</u><br/>Demonstrate and remove barriers to the deployment of Non-combustion Technologies in several different country settings.</p> <p><u>Short-Term Objective:</u><br/>Deploy an immediately available and proven Non-combustion Technology to the Philippines to destroy 4,547 tonnes of PCBs waste</p> | <ul style="list-style-type: none"> <li>- Proven, Non-combustion Technologies identified, deployed and shown to perform in a technologically superior way and at competitive cost.</li> <li>- Barriers have been explicitly identified and evidence demonstrated that they have been effectively removed.</li> <li>- The Selected technology has been transferred to the Philippines; it has successfully destroyed the targeted stockpile.</li> <li>- Documentation of the experience within each of the long, mid, and short-term objectives has been carefully prepared and distributed.</li> </ul>                       | <ul style="list-style-type: none"> <li>- PCU documents generally</li> <li>- PAC Meeting agendas and minutes</li> <li>- PSC and TAG meeting agendas and minutes</li> <li>- Terms of Reference</li> <li>- Work Plan</li> <li>- Targeted Stockpiles destroyed to the level of efficiency stipulated in the Project document</li> <li>- Technical Reviews</li> <li>- Monitoring and Evaluation Reports</li> <li>- Audits</li> </ul>   | <ul style="list-style-type: none"> <li>- Country, Civil Society, and Private Sector commitment to deployment of Non-combustion Technologies.</li> <li>- Barriers identified in the Programme and Project is capable of being successfully addressed.</li> <li>- Single country successes are able to translate into more globalized applications.</li> <li>- There is the emergence, in a growing number of countries and globally, an effective regime for the insurance of BAT and BEP.</li> </ul>                 |
| <p><b>Outcome 1: Improved capacity for environmentally sound management of POPs</b><br/> <i>Activities for Outcome 1: Establishment and Maintenance of a Project Coordination Unit located in the Philippines</i></p>  |   |   |  |
| <ul style="list-style-type: none"> <li>- Continue support to Programme Coordinator and establish Project Coordination Unit.</li> <li>- Recruit the Project CTA and secure resources for international and national consultancies.</li> <li>- Assure cross-GEF and other project coordination.</li> <li>- Plan and host needed Project Meetings.</li> </ul>   | <ul style="list-style-type: none"> <li>- PC contract extended</li> <li>- PCU created</li> <li>- Project CTA recruited</li> <li>- Necessary international and national consultants identified and recruited.</li> <li>- Project plan to effectively interact with related, regional GEF International Waters (IW) projects and POPs projects globally.</li> <li>- Successful communication with GEF and other related programmes, conventions, and other relevant mechanisms verified.</li> <li>- Country Lead Agencies and senior lead officials identified and designated.</li> <li>- Establishment of the PSC.</li> </ul> | <ul style="list-style-type: none"> <li>- Programme Coordinator, CTA and other PCU staff employed/contracts issued/terms of reference defined.</li> <li>- PAC meeting agendas and minutes.</li> <li>- PSC meeting agendas and minutes.</li> <li>- TAG meeting agendas and minutes.</li> <li>- Purchase orders/ contractual agreements/ and training records.</li> <li>- Documented increased level of governmental participation in regional fora.</li> <li>- Increased extent to which explicit cross project and programme linkages are created and joint activities and cooperative arrangements documented.</li> </ul> | <ul style="list-style-type: none"> <li>- The PCU will facilitate the work programme of the Project and the PC will create necessary linkages at national, regional and global levels.</li> <li>- The Executing Agency will move quickly to hire the Programme Coordinator, the CTA and other requisite staff. Delay in these recruitments will have a cascading effect of delays for the hire of support staff and the formulation of work plans.</li> <li>- IAs, other members of the various committees</li> </ul> |

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|---|--|---|---|
|   |  | <ul style="list-style-type: none"> <li>- Written records and reports of inter-project communications, workshops and cross-project field trips.</li> </ul>   | <p>and cross-project country representatives will see it in their best interests to participate in inter-project co-ordination and co-operative activities.</p>   |
| <p><b>Outcome 2: Transfer of non-combustion POPs destruction technology to the Philippines and destruction of 4,547 tonnes of PCB equipment</b></p> <p><i>Activities for Outcome 2: Purchase, Construction, Deployment, Testing, and Operation of Non-combustion Technology Leading to Destruction of the Targeted Stockpile and associated waste matrices in the Demonstration area</i></p>  |  |   |   |
| <ul style="list-style-type: none"> <li>- Purchase Capital Equipment by international bidding.</li> <li>- Undertake EIA to satisfy Government legal requirements.</li> <li>- Design, Construct, Deploy and test Destruction Unit.</li> <li>- Redeployment, Reconstruct and Test Operate of the destruction unit in the Philippines.</li> <li>- Selection of operating entity through local bidding process.</li> <li>- Project Management supervision (monitoring) of Design, Construction, Deployment, Shipping and re-deployment of Capital Equipment</li> <li>- Ensure necessary training of Project operational and managerial personnel (must be done in the Philippines) and effect technology transfer to the Philippines</li> <li>- Site preparation</li> <li>- Selection of transport company through local bidding process.</li> </ul> | <ul style="list-style-type: none"> <li>- After bids evaluated, vendor selected, contracts prepared and processed.</li> <li>- Country-driven environmental impact studies.</li> <li>- Documented evidence that the Destruction Unit has successfully been designed, constructed, and shown to operate according to design specifications.</li> <li>- After bids evaluated, vendor selected, contracts prepared and processed.</li> <li>- Documented evidence that the Unit has been successfully re-deployed to the Philippines and is operating consistent with design expectations.</li> <li>- Certification by the Vendor and by Project Management Supervisory personnel that training has been successfully undertaken and that a trained managerial and labour force is prepared to run the Unit</li> <li>- Vendor approval of and Project Management Supervisory personnel verification of successful site preparation consistent with operating needs</li> <li>- Documented evidence that the necessary raw materials are or will be made available to the project</li> <li>- Transport contract prepared.</li> <li>- After bids evaluated, owner of equipment selected,</li> </ul> | <ul style="list-style-type: none"> <li>- Copies of contracts with UNIDO and PCU.</li> <li>- Approved work plan for the EIA and documentation of the process leading to satisfaction of Government requirements.</li> <li>- Written report by Project Management Supervisory personnel documenting the process of design, construction, testing, deployment and successful operation of the Destruction Unit both at the Vendor site and in the Philippines.</li> <li>- Copies of contracts with UNIDO and PCU.</li> <li>- Existence of training manuals and records of training sessions in the PCU.</li> <li>- Site preparation plans and needs, as well as descriptions of site preparation activities maintained in the offices of the PCU.</li> <li>- Records of management and labour hours worked, raw materials used, and results achieved.</li> <li>- Transport contract copies with UNIDO and PCU.</li> <li>- Agreements leading to the final transfer of the Capital Equipment, and records of discussions and</li> </ul> | <ul style="list-style-type: none"> <li>- Necessary contracts have been successfully negotiated and signed.</li> <li>- EIA fully satisfies the Government requirements.</li> <li>- Necessary contracts successfully negotiated and signed.</li> <li>- The selected technology operates according to design specifications.</li> <li>- The elements of sustainability described in the Sustainability section of this Proposal have been successfully met.</li> <li>- Interest to own capital equipment locally or regionally.</li> </ul> |

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| <ul style="list-style-type: none"> <li>- Provide on-site management, labour and raw materials necessary to destruction activities.</li> <li>- Finalize Capital Equipment Transfer through bidding.</li> </ul>  | <p>documentation of Capital transfer arrangements.<br/>Documentation of Capital transfer arrangements.</p>  | <p>decisions leading to those agreements, kept in the offices of the PCU.</p>  |  |
| <p><b>Outcome 3: Project effectively monitored, evaluated and disseminated and mechanisms in place to facilitate project replication and sustainability</b></p> <p><i>Activities for Outcome 3: Effective, Specific, and Documented Actions Taken to Ensure Project Replication and Sustainability</i></p>   |   |  |  |
| <ul style="list-style-type: none"> <li>- Develop Monitoring Protocols and Evaluation framework and perform preliminary chemical analysis testing</li> <li>- Ensure requisite level of Monitoring and Evaluation.</li> <li>- Develop Monitoring and evaluation protocols</li> <li>- Prepare and distribute operational manuals and full range of Project Reports as well as other technical information.</li> <li>- Assure senior level Programme/Project representation at Stockholm and other related meetings and for a</li> <li>- Project Web Site created and maintained.</li> </ul> | <ul style="list-style-type: none"> <li>- Monitoring and Evaluation protocols approved and operational.</li> <li>- Monitoring and Evaluation timetable established and approved.</li> <li>- Working committees comprised of Project Supervisory personnel, PPDC officials and others as necessary to write Operational manuals.</li> <li>- Clear deadlines and responsibilities developed to ensure development. Production and distribution of Programme and Project reports.</li> <li>- Calendar of relevant and important Programme and Project related meetings and other for a developed and maintained as a means of determining venues to be visited.</li> <li>- Physical evidence of the existence of a dedicated project Web site.</li> </ul> | <ul style="list-style-type: none"> <li>- Texts of M&amp;E protocols and an Evaluation Framework on file at the PCU.</li> <li>- Records of M&amp;E activities undertaken, people involved, and results defined kept at the offices of the PCU and made available upon request.</li> <li>- Plans and records of activities developed, distributed and maintained in the offices of the PCU</li> <li>- Materials developed for and maintained in/on the Project Web site available publicly through the website.</li> </ul> | <ul style="list-style-type: none"> <li>- As barriers are reduced or eliminated new technologies will be developed and enter the marketplace to compete with both traditional combustion alternatives and the relatively limited number of alternative technologies currently available.</li> </ul> |

**Outcome 4: Increased regional cooperation in implementation of Stockholm Convention**

*Activities for Outcome 4: Development of a regional approach for POPs management with full civil society involvement*

|   |  |   |   |
|---|--|---|---|
| <ul style="list-style-type: none"> <li>- Assure a continuing and effective Asia and Pacific regional level approach to Non-combustion technologies</li> <li>- Assure continuing and effective Asia and Pacific regional level Civil Society representation in Project activities</li> <li>- Organize and Implement two additional regional workshops.</li> <li>- Continue assessment of existing and emerging technologies that meet programme selection criteria.</li> </ul> | <ul style="list-style-type: none"> <li>- Regional initiatives developed and implemented.</li> <li>- Civil Society initiatives developed and clear execution modalities defined.</li> <li>- Civil Society committees established. Plans described for the two additional regional Civil Society Workshops.</li> <li>- Technical Advisory Group Terms of reference contain clear responsibility for and guidelines to continue technology evaluation.</li> </ul> | <ul style="list-style-type: none"> <li>- Plans for and records of Civil Society participation in Programme and project.</li> <li>- Minutes of the Technical Advisory Group and relevant reports compiled, distributed and maintained.</li> <li>- Copies of all other relevant Programme and Project Reports distributed.</li> </ul> | <ul style="list-style-type: none"> <li>- The approach represented by the Non-combustion Project has proven highly popular with significant elements of Civil Society</li> </ul> |
|---|--|---|---|

## **ANNEX C: RESPONSE TO EXTERNAL REVIEWS**

- a) **Convention Secretariat**  
*Not applicable*
- b) **Review by expert from STAP Roster**

### **STAP TECHNICAL REVIEW OF GEF PROJECT PROPOSAL AND UNIDO RESPONSE**

#### **Subject of the Review:**

**Project name:** Global Programme to Demonstrate the Viability and Removal of Barriers that Impede Adoption and Successful Implementation of Available, Non-combustion Technologies for Destroying Persistent Organic Pollutants (POPs)

**Requesting country:** The Philippines (second phase)

#### **Project number:**

#### **Scientific and technical soundness of the project:**

Specific problem of all this demonstration projects is a limited number of vendors of suitable and commercially available technology. Project was focused on the technologies themselves and also on criteria that might be used in their evaluation, selection and deployment. The first topic of interest of had to be the commercially availability, especially for this phase of demonstration project.

Based on the Technical Advisory Group (TAG) evaluation meetings and with using of results of STAP expert evaluation of existing technologies, the Philippines project was able to identify several acceptable vendors for stockpiles with basic characteristics in Philippines. Final selection of the technology most suitable to address stockpile in Philippines will be selected by the open bidding process at the very beginning of the full project.

Based on these evaluations with the respect of criteria of GEF Project Preparation documents, the initially screening the range of currently available non-combustion technologies was performed. On the basis of application of these criteria and results of all evaluations, three technologies were identified for further consideration - Gas Phase Chemical Reduction, Based Catalyzed Decomposition and Sodium Reduction Process.

The final of appropriate technology would be driven by the nature of the Philippines stockpile.

Project illustrates the basic differences between up-to-date more spread and preferably use combustion technologies and non-combustion technologies. The total destruction of chemicals in non-combustion technologies without secondary production of wastes and releases to the other compartments such as waters, soils or products is very important advantages of this type of technology and from the point of view of Stockholm convention very hope and promising. This type of technology is a nice example of environmental acceptable destruction technology without additional harmful effects.

#### **Background and justification:**

The basic goal of the project is the using of successful and effective technology for destruction of obsolete POPs stockpiles in countries with developing economies and economies in transition. Project is based on the lacking of adequate and appropriate technical capacities to properly destroy obsolete stocks of POPs and/or to remediate POPs-contaminated environmental reservoirs in the countries with developing economies and economies in transition. This specific project is located in the Philippines as

a country which was user of PCBs mixtures and which has a relatively actual inventory of stockpiles with contaminated equipments.

Using of good experiences from Australia and other countries and good acceptance by public in the comparison with other technologies is a good advertisement of this technology, on the other hand it will be perceived by the lobby of combustion and other technologies as abuse of Stockholm Convention for preference of other lobby. This project is the second non-combustion demonstration project and can serve as a pilot project for the countries with developing economies.

**Identification of the global environmental benefits and/or drawbacks of the project:**

Project is focused to the help with removing barriers to the further adoption and effective implementation of available non-combustion technologies.

This project is also very important for the developing of market with waste treatment technologies and broader competition.

**Fitting of project within the context of the goals of GEF:**

Project supports the Stockholm Convention requirements to ensure the use of non-combustion technologies and Best Available Technologies (BAT) and ensure Best Environmental Practices (BEP). Project is in good agreement with the basic conclusions of SC especially concerning to the developing of strategies for identifying of stockpiles, products and articles in use and wastes covered by the treaty, after which they must manage the stockpiles in a safe, efficient, and environmentally sound manner. SC defines the ultimate elimination of the total releases. From this point of view is the evaluated project good example of this approach, which respects all basic conclusions and approaches of SC.

The Stockholm Convention proposed for POPs destruction technologies that they should prevent the formation of dioxins, furans and other by-product POPs, prevent the release of dioxins/furans and other by-product POPs, not generate any wastes with POPs characteristics, avoid POPs disposal methods which are non-destructive (e.g. landfilling, recycling, deep-well injection, etc.).

**Regional and/or global context:**

Similarly as in the case of Slovakia, also this project is example of potential joint and useful collaboration between international bodies such as GEF and national authorities (local Government) and local private sector for future efforts, which will be undertaken pursuant to the Stockholm Convention.

Demonstration of this technology in the region is very suitable, because a lot of countries in this part of Asia have huge amount of obsolete POPs mainly chlorinated pesticides and PCBs and this project can serve as example of effective method for solution of this problem similarly as it the case of Central and Eastern European countries).

**Project Design:**

Project briefly describes potential barriers and risks of project realization - lack of sufficient infrastructure, needs for capacity building. But there is no specific information concerning to real problems such as possibilities and capabilities of safety transport to destruction facility, existing storage system, storage system during project realization. There is only one sentence, which describes that problem maybe considerably greater than was anticipated. More detailed description of potential risks for project realization will be suitable.

Project describes the problems connected with nature of existing regulations and standards/markets including the description of actual situation concerning to new companies associated with non-combustion technologies (not real sales forces, no political connections, not well capitalized).

Presence of non-technological/non-market barriers (problems with the operation of appropriate facility to clean-up, dispose of and destroy of toxic wastes) and lack of a regime for public policy and institutional infrastructure, are also describe. Country was/is not a producer of PCBs, but PCBs mixtures were frequently used. Country has appropriate legislative base for management of PCBs problem. The Government of Philippines has taken the initiative to improve upon this emerging regime as it has participated as a full partner in preparation. Project proposed that one product of Project will be a Final Report dedicated the experiences and results of Project.

All this parts are very general, similarly as in the case of Slovak project, the more detailed and concrete description of status of waste markets with detailed analysis of waste disposal services, regulations in this field, list of licensed companies, will be much more usefulness.

**Evidence for government commitment and sustainability:**

Lack of adequate alternatives for destruction of POPs (mainly PCBs equipment and wastes) resulted into problematic management in the country similarly as in the many other countries.

Financial sustainability is based on the contribution of Philippines Government and private sector. This commitment undertakes a minimum of a four-year program of operations for this technology. Project supposes realization of EIA procedure based on the Philippines legislature. It is not clearly describes if this procedure is obligatory or not, if it must be done before project starting.

**Replicability of the project:**

Experiences gained during the project realization in Philippines can be very helpful for other countries especially as far as the better understanding of potential barriers during project implementation in other countries. This project can lead to optimum procedure with using of all experiences and results, what can be important especially as far as the applications in other countries of region.

**Project funding:**

Project will be funding by GEF, the Government of Philippines and private sector during the period of four year and will continue to 2013. Based on experiences from Slovak project, the guarantee of national partners should be suitable if will be done officially as soon as possible.

**Time frame:**

The time plan looks as a realistic.

Time frame depends on the financial covering and official acceptance of the project including the EIA procedure, which can be time-consuming part of realization.

**Other beneficial or damaging environmental effects:**

Projects also briefly summarize global benefits for other GEF projects such conservation of biological diversity or improved water quality and explain the potential effects of environmental present POPs for these global problems.

**Degree of involvement of stakeholders in the project:**

Philippines are one of the countries with serious interest to adequately address POPs problems with strong public involvement. Full civil society involvement has been practiced during project preparation and project supposes that will continue during the all project phases. One important barrier was also lack of information about non combustion technologies at all levels of Civic Society, including among elected and appointed government officials.



The role of stakeholders in the phase of Project preparation is described as a unique and can be very helpful during the future steps of project implementation and realization. Project will organize and covered some additional workshops and activities for better public understanding of the project.

**Summary:**

The Project “Global program to demonstrate the viability and removal of barriers that impede adoption and successful implementation of available, non-combustion technologies for destroying persistent organic pollutants (POPs)” has a great relevance to global and regional solution of POPs problems as far as the destruction of obsolete POPs stocks, wastes and contaminated environmental matrices such as soil or sediments.

The evaluated technology fully respects the requirements of Stockholm Convention as far as the technologies suitable for the solving of POPs containing stocks and wastes. The project application for four regionally distributed model countries is reasonable and good experiences from these model realizations can be a good example for other countries from these regions.

Project for Philippines as requesting country defines expected risks and barriers, which can be limited steps for application in the developing countries and in the countries with economy in transition.

Based on my professional experiences, I consider this project as well prepared and selection of non-combustion technology as suitable for the destruction on POPs stocks and wastes without additional harmful environmental releases.

I recommend this project to accept.

Brno, 01/01/2004

Prof. Dr. Ivan Holoubek

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## UNIDO RESPONSE TO THE STAP REVIEW

The STAP review is overall very positive regarding every relevant technical and scientific aspect of the Project. The STAP review does reference several sections that could be strengthened and these comments have been taken into account. Specifically:

STAP Reviewer Comment on Project Design:

a) Lack of specific information on safe transport to destruction facility, existing storage system, storage system during project realization.

Project Response:

Transport of hazardous wastes in the Philippines is governed by DAO No. 29, which provides Implementing Rules and Regulations of Republic Act 6969. According to this DAO, which is appended to this Project Brief as Annex 7, a transporter of hazardous wastes must secure a permit issued by DENR. The DAO specifies action and requirements for the waste transporter so as to ensure safe transportation of hazardous materials in the country. The DAO also specifies actions required in respect of hazardous waste storage and labeling. The DAO is enforced by the DENR and therefore the risk with regard to safe transportation and storage of PCBs in the Philippines is limited only by the enforcement capacity. DENR has also issued the Philippine Chemical Control Order (CCO) on PCBs (DAO No. 1 Series 2004), which specifically addresses the problem of PCBs (see Annex 6). The project will assist the Government in operationalizing the CCO particularly with respect to safe transportation and storage of PCBs.

STAP Reviewer Comment on Project Design:

b) There is need of more detailed and concrete description of status of waste markets with detailed analysis of waste disposal services, regulations in this field, list of licensed companies.

Project Response:

There are no PCB disposal facilities in the Philippines. In the past there are records of disposal by landfilling but this approach has been abandoned. There are no incineration or non-combustion POPs destruction facilities. A few small companies are involved in retrofitting transformers. Small quantities of PCB equipment are exported to incineration facilities in Europe. Republic Act 6969 and the DAO No. 29 cover the regulatory framework. The CCO DAO No. 1 Series 2004 covers all relevant and specific issues regarding PCBs. DENR maintains a list of companies licensed to handle hazardous wastes. The companies are required to abide by provisions of the DAO No. 29.

STAP Reviewer Comment on evidence for government commitment and sustainability:

To indicate whether Environmental Impact Assessment is obligatory.

UNIDO Response:

EIA is a requirement enforced by DENR as per DAO No. 37 of 1996 (DAO96-37) and has been included in the Project Brief.

**c) Response to comments from Secretariat and other Agencies**

***Response to GEFSEC Review of 24 March 2004***

All comments and recommendations of the GEFSEC review dated 24 March 2004 have been considered and duly taken into account.

Using of a very similar language in the Slovakia and the Philippines project briefs can be justified by the fact that both are based on the deliberations of the TAG meetings and during the preparatory stage of preparing the National Implementation Plan for the Stockholm Convention in the respective countries. More recently the STAP technical workshop also discussed and reviewed both projects based on the presentation of UNIDO. But it should also be noted that this presentation of the projects led to the complete revision of the chapter on “Application of technology to developing countries” of the STAP report on “Review of emerging, innovative technologies for the destruction and decontamination of POPs and the identification of promising technologies for use in developing countries”.

The impression that no progress has been made conceptually might be true, but it should not be taken negatively. Since the submission of the first project brief in Slovakia to the GEF Council one year ago significant progress has been achieved in understanding the nature and, based on this understanding, successfully developing public private partnerships for project execution, in successfully mobilizing significant private sector co-financing in cash, and in attracting new stakeholders that would contribute to the project. These achievements, and particularly the public private partnerships, have very positively impacted the project development and formulation and have been imbedded in the Executive Summary and the Project Brief, e.g. the envisaged exit strategy to use a bidding process for transfer of ownership of equipment; using international tendering for the technology selection and national bidding for the selection operating entity and the local shipping company; adaptation of the technology for selected hazardous wastes other than PCBs; and regional diffusion and possible transfer of the technology.

***Comments from the World Bank dated 25 March 2004 on Project Brief for UNDP/UNIDO on Non-Combustion Technologies for Destroying POPs in the Philippines***

We have four general areas of concern about this project:

- (1) **Regulatory Framework.** It is not clear from the Project Brief and Annexes that the Philippines have in place the regulatory and institutional framework necessary to ensure the success of this project. The Project Brief cites (Paragraph 7) favorably “the Australian experience where public policy is to avoid the use of incinerators for the destruction of hazardous wastes.” Our understanding is that Australia prohibits both incineration and export, thus forcing the use of domestic non-incineration alternatives. While the Project Brief asserts (Paragraph 39) “Incineration and imports of PCBs are banned in the Philippines,” we did not see in either the Chemical Control Order or the Act 6969 (Annex 7) such a ban on incineration, and suggest that if the statement is accurate, the appropriate citation be added or clarified. Equally important, we noted no prohibition on export; to the contrary, the Chemical Control Order refers (Section 6.2) to export “if necessary,” thus allowing generators to continue to send PCBs abroad for incineration instead of using whatever non-incineration technology this project might ultimately offer.
- (2) **Lack of Inventory.** As far as we know, the Philippines does not yet have a full and current inventory of PCBs and PCB-containing equipment and oils, but we do not see how a reasonable characterization of the PCB situation can be constructed without knowing the scale and distribution of the problem within the country. Paragraphs 18 and 52 state that the Philippines has now issued the Chemical Control Order attached as Annex 6; although that Order requires registrants to submit

inventory information, it seems unlikely that the full inventory could be compiled this year, in part because most registrants are given until at least early 2005 to report, and in part because of the need to follow up and verify submitted information.

- (3) **Cost.** Our concern about cost relates also to the need for an adequate regulatory framework. The Project Brief appropriately, and accurately, notes (Paragraph 46) that generators “can still be expected to purchase the least costly service that satisfies legal and regulatory requirements.” Our understanding is that PCB incineration costs in Europe are currently at most around \$3,000-4,000 per tonne, notwithstanding the higher figures cited in Paragraphs 18 and 88. The Project Brief estimates (Paragraphs 84 and 88) that the proposed non-combustion alternative will cost \$3,500 per tonne. Consequently, we are concerned that the proposed project would be unlikely to succeed where export for incineration remained both legal and the cheaper alternative. We suggest that UNDP/UNIDO verify the relevant costs, as well as clarifying the implications for the project of export remaining a legal alternative for generators and owners of PCBs in the Philippines.
- (4) **Replicability.** It is not clear to us from the Project Brief what lessons are expected from the Philippine experience that can’t be gleaned from the Slovakian experience. We suggest that the Project Brief be clearer on the need for the Philippines project in light of the apparently similar work being funded in Slovakia and, even more importantly, on the need to move ahead before enough progress has been made in Slovakia to allow UNDP/UNIDO to evaluate that experience and make any necessary corrections before proceeding in the Philippines.

**Project response to the World Bank comments:**

1) Regulatory Framework

The "Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990" that is the DENR Administrative Order No. 29 Series 1992, Implementing Rules and Regulations (IRR) of Republic Act 6969 (Annex 7 of the Project Brief) and the "Chemical Control Order (CCO) for polychlorinated biphenyls (PCBs)" that is the Philippine Chemical Control Order, DENR Administrative Order No. 1 Series 2004 (Annex 6 of the Project Brief) in fact ban the incineration and import of PCBs in the Philippines. The relevant sections of the legislation are as follows:

- The CCO in Section IV, Item 3 stated that "*The commercial and industrial owners and operators must comply with the requirements for transport, storage and disposal specified under Title III of the IRR for transportation, storage and disposal of PCB wastes.*"
- The IRR under Title III, Section 30, in Table 3 listed "*commercial or industrial hazardous waste incinerator*", but these do not exist in the Philippines.
- The CCO in Section IV, Item 6.1b. stated that "*All treatments and disposals must be approved by the Bureau and should be in conformance with RA 8749 otherwise known as the "Clean Air Act of the Philippines".* The referred Section 20 of RA No. 8749 bans the use of incineration, which process emits poisonous and toxic fumes (see in Annex 8 of the Project Brief: Memorandum of Understanding between DENR and stakeholders).
- The CCO in Section V, Item 1b. stated that "*All importation, sale, transfer or distribution of PCBs, PCB equipment, PCB-contaminated equipment, PCB wastes, PCB articles or PCB packaging shall no longer be allowed*".

- The CCO in Section IV, paragraph 6.2 stated that "If necessary, wastes containing high levels of PCBs must be exported in accordance with the provisions of Section IV Item 6.1b of this Order and must meet the requirements for transboundary movement of wastes under the Basel Convention".

From the above citations it is clear than in fact incineration of PCBs is banned in the Philippines because the combustion technologies that exist in the country are using processes that emit poisonous and toxic fumes. Export is allowed as an option but it is an expensive proposition because the export costs are unreasonably high. The costs of export are more expensive than in Europe due to the packaging, sanitation and shipping costs and averaging US\$ 5,000 per tonne. That is why it is limited to about 200 tonnes of PCBs export per year.

The Australian experience (paragraph 7 of the Project Brief) is only given to show the successful application of the non-combustion technologies in the region. It does not imply that the Government of the Philippines should follow the Australian legislation but rather should make its decision based on the EIA and market prices. In other words UNIDO's argument is that non-combustion technologies should compete with incineration technologies and none of them should be forced by the Government.

#### 2) Lack of Inventory

The PCBs inventory figures of the Project Brief have been certified by the Government. But as the inventory work is an ongoing activity the final figures would presumably be higher. As a consequence such a higher inventory will have a positive impact on the sustainability of the selected technology.

#### 3) Cost

The costs figures quoted in the Project Brief are real figures. The actual PCBs export figures for incineration are sometimes prohibitive. The Project Brief using an estimate of US\$ 5,000, that is the average costs of PCBs export per tonne for the baseline calculation. The cited figure of US\$ 3,500 per tonne in the comments of the World Bank refers to the experts' estimate for the PCBs destruction by a selected non-combustion technology. According to this estimate the non-combustion technology will be able to compete with PCBs exports for incineration.

The actual situation is that UNIDO did not want to base the baseline calculation on the unreasonably high export prices that limit the export to about 200 tonnes per year. That is the reason that the US\$ 5,000 per tonne export price as average has been "invented". The real average would be significantly higher!

#### 4) Replicability

UNIDO appreciate this comment that underlines the global importance of this project. On the other hand it was decided in principle to proceed with the demonstration projects in four selected countries. The basis for this is that the situation in Slovakia and in the Philippines is very different and one cannot compare. Slovakia is a country with its economy in transition. Slovakia had up to 1984 one of the largest PCBs manufacturing operations in Europe. As an immediate result of this is that the PCBs waste matrices are significantly different between Slovakia and the Philippines. Due to the fact that the Philippines is a developing country the infrastructure and logistics for the application of a selected non-combustion technology has a completely different set of premises and requirements. As the non-combustion technology seems to be less expensive than PCBs export for incineration in the Philippines, such an alternative technology that can compete with the export should be considered. Hence this project in the Philippines is very timely.

The successful execution of the demonstration project in the Philippines could be easily replicated in the region as early information shows that countries in the region show great interest in alternative technologies, e.g. Vietnam.