



## MEDIUM-SIZED PROJECT PROPOSAL REQUEST FOR GEF FUNDING

**GEFSEC PROJECT ID:**  
**IA/EXA PROJECT ID:**  
**COUNTRY:** Uruguay  
**PROJECT TITLE:** Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay  
**GEF IA/EXA:** UNDP  
**OTHER PROJECT EXECUTING AGENCY(IES):** MVOTMA - DINAMA  
**DURATION:** 2 years  
**GEF FOCAL AREA:** Persistent Organic Pollutants  
**GEF-4 STRATEGIC PROGRAMMS:** POPs; SP-1; SP-2; SP-3  
**GEF OPERATIONAL PROGRAM:** OP 14  
**I A/EXA FEE:** USD 99,955  
**CONTRIBUTION TO KEY INDICATORS IDENTIFIED IN THE FOCAL AREA STRATEGIES**

FINACIAL PLAN (USD)		
	PPG	Project*
<b>GEF Total</b>	45,000	954,550
<b>Co-financing</b>		
GEF IA/ExA		19,500
Government		
DINAMA	5,000	492,350
UTE		577,000
Others		10,000
<b>Co-financing Total</b>	5,000	1,098,850
<b>Total</b>	50,000	2,053,400**
Financing for Associated Activities if Any:		
<small>*If project is multifocal, indicate agreed split between focal area allocations  ** Does not include IA/Ex Fee.</small>		

MILESTONES	DATES
PIF APPROVAL	
PPG APPROVAL	May 2006
MSP EFFECTIVENESS	September 2007
MSP START	November 2007
MPS CLOSING	November 2009
TE/PC REPORT*	December 2009

\* Terminal Evaluation/ Project Completion Report

Approved on behalf of the (*Enter accountable GEF Agency*). This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the Review Criteria for GEF Medium-sized Projects.

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## **LIST OF ABBREVIATIONS**

<b>CTA</b>	Chief Technical Advisor
<b>DINAMA</b>	National Directorate for the Environment
<b>ESM</b>	Environmentally Sound Management
<b>GEF</b>	Global Environment Facility
<b>GoU</b>	Government of Uruguay
<b>IA</b>	Implementing Agency
<b>LA</b>	Legal Advisor
<b>MoU</b>	Memorandum of Understanding
<b>MSP</b>	Medium-Sized Project
<b>MVOTMA</b>	Ministry of Housing, Use of Land and Environment
<b>NEA</b>	National Executing Agency
<b>NGO</b>	Non-governmental Organization
<b>NIP</b>	National Implementation Plan
<b>NPC</b>	National Project Coordinator
<b>OP</b>	Operational Program
<b>PCB</b>	Polychlorinated Biphenyl
<b>PDF A</b>	Project Development Facility Block A
<b>POP</b>	Persistent Organic Pollutant
<b>ppm</b>	parts per million
<b>PSC</b>	Project Steering Committee
<b>TC</b>	Technical Committee
<b>UNDP</b>	United Nations Development Programme
<b>UNEP</b>	United Nations Environment Programme
<b>US EPA</b>	Environmental Protection Agency
<b>UTE</b>	Electrical Power Utility

## PART I - PROJECT CONCEPT

### A - SUMMARY

#### *Rationale and baseline*

1. The National Implementation Plan (NIP) for the Stockholm Convention for Uruguay identified the PCB issues as a first project for realization as one of the top priorities requiring immediate attention and action. Excluding unintentionally generated POPs, PCBs are the only substances included in the Stockholm Convention which are used in the country, and whose entry into the country and trade has never been regulated. Confidence in GEF's assistance and UNEP support as Implementing Agency for the development of the NIP and its action plans provided the rationale to continue the PCB-related activities with this MSP.
2. The obligations regarding PCBs for Uruguay as Party of the Stockholm Convention require the strengthening of the national capacities for the environmental management of contaminated equipment and waste. This is a strategic issue, crucial to comply with the time schedule mandated by the Convention.
3. The project will consolidate ongoing and baseline activities of the government in implementing its obligations for PCB management elimination. The funding will be used for strengthening the legal coverage and management guidelines, demonstrate implementation of locally viable and environmentally sound PCB control measures and their incorporation into national policy framework. Ultimately, this will facilitate sustainable reduction of PCBs in Uruguay through subsequent scaling up demonstration, so that more efficient and cost-effective approach for PCB destruction will be available for PCB owners.
4. It is estimated that 40,000 transformers exist and are operating in Uruguay. Of these, 95% belong to UTE (*Administración de Usinas y Transmisiones Eléctricas*) the public utility for electricity generation, transmission and distribution. The remaining 5% belongs to some 500 small and medium-sized companies that consume energy in medium and high voltages (it is estimated that each one has between 1 and 5 transformers).
5. Regarding **capacitors** and other electrical equipment no conclusive information could be gathered during the NIP activities. The possible holders of capacitors are UTE, which has capacitors banks, and industries having need of reactive power correction. No estimation for capacitors is available so far. However 15 tons of PCB containing capacitors were exported by UTE for their disposal in Europe. (see Annex V)
6. As mentioned in the NIP, Uruguay has limited experience on the practical management of PCBs. The country lacks the necessary infrastructure to manage PCBs and PCB containing equipment in an environmentally sound manner. There are no specialized PCB treatment disposal facilities. In this regard, there is a well-recognized need to increase awareness and to train government officials and specialists from industries on the criteria for environmentally sound management, including final disposal, of POPs as waste in the context of the Stockholm and Basel Conventions.

7. The country's limited experience in PCB management has been gained by UTE, mainly its Environmental Management Unit, since 1994. The first PCB containing equipment and oils were detected by using the screening kit Chlor-N-Oil and origin information of the transformers. An UTE's technical committee developed a set of internal standards and procedures which include: maintenance and inspection of equipment, handling of used dielectric oils, identification, classification and reclassification of contaminated equipment, management of equipment and the prohibition of purchase of equipment with more than 2 ppm PCB. Since 2003 transformers and other equipment are being monitored prior to any maintenance work at UTE's General Workshops and prior to their release from the workshops. This enabled to implement a traceability system for the distribution equipment.
8. In 1998, 22 tons of equipment and oil containing PCB, mainly Askarels, were exported by UTE for incineration in Europe, this included 4,6 tons of capacitors. Further 46 tons were exported in 2006, containing the equipment and oil from hydro generation, transmission, a small amount from distribution and about 10 tons of capacitors. Additionally a pilot experience was held in Salto Grande hydro generation facility for the dechlorination PCB-containing oil around 50-100 ppm, performed by the Argentinean company Kioshi S.A. using a process based on the Würtz reaction with alkaline metals.(see Annex V) The above mentioned operations required the building of an interim storage for these hazardous wastes, which capacity is getting limited. Therefore an upgrade and expansion of its capacity is needed.

### *Objectives*

9. The objective of the project is to overcome the current barriers, which impede implementation of the PCB-related obligations of the Stockholm Convention in Uruguay. The MSP foresees the strengthening of an environmentally sound management (ESM) system of PCBs based on a consensus between relevant government authorities, the private and public sectors and NGOs. Special emphasis will be given to partnering with owners of PCB for phasing out PCB equipment. The project will create a sound environment for all PCB-related activities. The aim is that all activities should be undertaken in a controlled and coordinated manner by protecting human health and the environment from the harmful effects of PCBs.
10. The GEF resources will also be used to establish the necessary environment for implementation of the ESM and to develop a sustainable mechanism to complete the PCBs disposal in Uruguay. From a global perspective the project will phase out and dispose PCB-containing equipment thus is reducing risk for human health and the environment. Further, the lessons learned in the project can be multiplied in countries having similar barriers in meeting the obligations of the Stockholm Convention.

### *Outcomes*

11. The main outcome of the project is increased national capacity to manage PCBs in an efficient and environmentally sound manner. It will be achieved through an Environmentally

Sound Management (ESM) system and a National Plan for PCB Management, which makes all concerned parties motivated and capable in fulfilling the PCB related obligations of the Stockholm Convention.

12. The ESM system developed will include action and responsibilities both for the authorities and holders of PCB containing equipment and wastes. The components will for the authorities will broadly be:
  - a) regulatory changes according to the obligation of the Stockholm Convention,
  - b) detailed guidelines for managing all stages of the life-cycle of PCBs, PCB-containing or PCB-contaminated articles and wastes,
  - c) resource mobilization mechanisms for owners of PCBs, PCB-containing or PCB-contaminated articles and wastes.
  - d) enforcement mechanisms
13. GEF financial assistance will be used for developing the ESM system, including demonstration activities, like disposal and site cleaning projects, for showing best practices. Project implementation will raise awareness concerning PCBs and the Stockholm Convention in the governmental, public, and private sector, which are involved in the PCB field.
14. The ESM system will include
  - a) increased safety and minimization PCB releases exposure during the operation of PCB containing equipment
  - b) a more precise PCB inventory of the electrical equipment, articles and wastes,
  - c) laboratory capacity to analyse PCBs in oils (by L 2000 Analyser), soil and other matrices (by GC-ECD),
  - d) a database on the electrical equipment in total and especially with emphasis to equipment which is in the most critical condition or poses a particular risk to the public (kindergarten, hospital etc.),
  - e) proper interim storages for PCB containing equipment withdrawn from use for the private sector and upgrades of existing storages in UTE, and
  - f) reduced risks for environmental pollution via phase-out and disposal.
  - g) local treatment alternatives are evaluated and ready to be implemented.
15. Pilot disposal operations and the countrywide inventory estimate will assist the government to assign the necessary resources for the implementation of all requirements of the Stockholm Convention concerning the full-scale and safe disposal of PCBs in Uruguay. The project will also provide a replicable model of cooperation between government, public and private entities in addressing global environmental challenges, in particularly those related to

hazardous waste management.

### Coordination

16. This project will be nationally executed (NEX) by the MVOTMA. The National Directorate for the Environment (DINAMA) is nominated to provide the project coordinating activities at the country level. A National Project Coordinator will support the NEA. Its expertise has been proven through their leading role in the country during the development of the NIP. Task teams will be established for the implementation of the activities of the project. Project related decisions and evaluations at the country level would be undertaken by a Steering Committee. The overall implementation of the project will be supported and monitored by UNDP.

### Key Indicators, Assumptions and Risks

DESCRIPTION	PERFORMANCE INDICATOR	MEANS OF VERIFICATION	TARGET	RISK AND ASSUMPTIONS
PCB management guidelines develop and put in practice.	Technical guidelines approved.	Government publications, web-sites.	3-6 covering all topics specified under outcome 2.	
Upgrading the interim PCB storage owned by UTE to international standards as example for other domestic PCB holders.	Design developed and accepted by UTE and DINAMA.	Site inspection report.	1 PCB Interim storage as according to international standards.	Upgrade can be done as per resources committed by UTE.
Phase-out, collect, storage and disposal of PCB equipment from the demonstration projects.	Tender completed. Number of equipment phased out, collected, stored project and disposed.	Tender contract. Certificate of disposal.	Eliminate already detected stockpiles. 125 tons of PCB equipment disposed.	Safety measures will be put in place according to the guidelines to be developed during the course of the Project. Special training and protective equipment will be provided so as to reduce risks for health and the environment. Final Disposal prices held at same US\$ level.
Gain knowledge and hands on experience on PCB proper site evaluation and intervention. Site clean up	Number of clean up sites. Tons of treated soil.	Final site evaluation report of each site.	At least 1 prioritised site clean up.	Prioritised sites and technologies can fit the budget. Clean up approach chosen gives results within project time span. Safety measures will be put in place according to the guidelines to be developed during the course of the Project. Special training and protective equipment will be provided so as to reduce risks for health and the environment.
Replicable National Plan for PCB Management developed.	National Plan developed. Agreements between stakeholders.	Plan published and approved. MoUs signed.	Plan presented at final project workshop.	

Risk and exposure minimization for the humans and the environment resulting from handling of PCBs are explicitly considered under the corresponding activities. Thus a risk assessment will be performed for such activities and the needed safety measures will strictly be put in place to protect humans and the environment from PCBs. Additionally as per Activity 2.1, the project will develop PCB management guidelines, which will be in accordance to internationally implemented safety standards and will be available to the public.

## 2 - COUNTRY OWNERSHIP

### a) COUNTRY ELIGIBILITY

17. Uruguay ratified the Stockholm Convention on POPs on 31 December 2003 by Law No. 17.732. Uruguay, with the GEF assistance developed a POPs National Implementation Plan as per Article 7 of the Convention. The NIP was endorsed and submitted to the Stockholm Convention Secretariat in June 2006. Uruguay is eligible for GEF support under para. 9(a) of the GEF Instrument.
18. Article 12 of the Stockholm Convention states that appropriate technical assistance to parties with developing country shall be made available, to assist them, taking into account their particular needs, to develop and strengthen their capacity to implement their obligations under the Convention. Article 13 indicates that new and additional financial resources shall be made available to enable parties with developing country to meet the agreed full incremental costs of implementing measures, which fulfil their obligations under the Convention.
19. In consistence with these articles, the project reflects national priorities set out in the NIP. It further elaborates the proposed measures and addresses additional issues, currently not dealt with in the PCB-related action plan, such as resource mobilization. The project will improve the global environment by introducing a sustainable PCB management system, which will enable authorities, NGOs and PCB owners to work jointly in managing PCBs in an environmentally sound manner. It also advances the prospect of reducing risks to the environment and to the human health.

### b) COUNTRY DRIVENNESS

20. The National Implementation Plan for POPs was developed through the GEF grant with UNEP and UNDP's assistance (in this case, UNEP was the Executing Agency, UNDP was administering the funds and also provided support). All national stakeholders participated jointly and proactively in this process.
21. The POPs NIP was developed understanding that Persistent Organic Pollutants are a subset of chemicals within the universe of chemical products and substances. Additionally the NIP has used the **life-cycle** approach to tackle the management of POPs. Through this approach, management of chemicals may be analysed from a broader perspective, making it possible to put situations, problems, measures or actions in a wider framework that includes before and after stages in the history of the chemical's process. Thus, problems may be strategically foreseen or corrected through actions taken in the early stages. This opens up the possibility to solve problems which appear in a scope (of competences) of action in an organization, making it possible to find a solution even within the competence field of another organization.
22. Uruguay's has established for its NIP the following agreed general objectives:

- Reduce risks posed to human health and the environment by persistent organic pollutants, through the improvement of the chemical's and solid waste management in Uruguay, developing and strengthening measures, as well as prevention and control instruments, in the whole life cycle and within the framework of the national environmental policy.
  - Fulfil the obligations arising from the Stockholm Convention.
  - Strengthen and develop national institutional capacities and develop mechanisms that foster national coordination and integration for sustainable environmental management of chemicals and foster inter-institutional cooperation for the development of system capabilities.
  - Increase awareness in the population and workers on the harmful effects and risks associated to the use of chemicals so that they take an active part in the management improvement process.
23. Taking the aforementioned into account, the National Implementation Plan has been developed with the following governing principles:
- An **integrated approach** to the problem, taking into account the life-cycle of substances and products.
  - The **responsibility of actors** in all stages of the life cycle including the principle of responsibility extended to the producer/importer.
  - **Prevention** to minimize harmful effects to health and the environment, involving the manufacturers' responsibility in the development and application of more efficient production systems, substituting raw materials for less dangerous ones or technological changes as well as suitable information management.
  - **Gradual application** tending to the **continuous improvement**, that gives **flexibility and adaptability** to the implementation process.
  - Suitable management of information making it clear and available to any interested actor, thus giving **transparency and equity** to the actions.
24. The NIP was structured in six specific programmes: *P1-Improvement of Chemical Substances Management, P2-Sound Management of Pesticides, P3-Improvement of Unintentional Emissions Management, P4-Elimination of PCB stockpiles, P5-Prevention and Management of Contaminated Sites, P6-Awareness Raising, Training and Community Involvement* (page 66). This MSP incorporates some of the components highlighted in P1, P4, P5 and P6. A detailed break down is shown in the list starting on page 68 of the NIP document .
25. Apart from unintentionally generated POPs, PCBs are the only substances included in the Stockholm Convention which are used in the country, and whose entry into the country and trade has never been.
26. Regarding specifically the PCB issue the NIP shows a detailed list of short-term and medium term activities in chapter 4. (pages 115 to 117 of the report). Furthermore a "phase one" project list was set up which starts with activities related to PCBs (chapter 6, page 130)



27. Finally, the identified priorities for PCB included in this project are in conformity to the national environmental policies. The proposed project will additionally include experiences which are needed for other concerns which are also listed in the NIP, such as strengthening of waste management systems and proper reports (chapter 3, table 3.25).
28. This was formally recognized by the Uruguayan Government in Decree 375/006 giving *national-interest* status to the implementation and execution of the National Implementation Plan (NIP) and set DINAMA as focal point and national coordination centre for the implementation of the Stockholm Convention and its NIP. Thus it commits the organisms of the Executive Power and other state and private entities to implement it.
29. In May 2005, Uruguay hosted the First Conference of the Parties to the Stockholm Convention in Punta del Este, showing the great commitment and interest that the Government of Uruguay has for tackling the POPs issues both domestically and internationally.

### **3 – PROGRAM AND POLICY CONFORMITY**

#### **a). PROGRAM DESIGNATION AND CONFORMITY**

30. The GEF Operational Programme on Persistent Organic Pollutants (POPs) foresees for its GEF-4, financial assistance to developing countries for the NIP implementation activities focusing on strategic programmes related to the investments and capacity building to achieve it. These strategic programmes have been taken into account during the design stage of the project.
31. The project outcomes and activities will mainly contribute towards the GEF Strategic Objective 1 indicators
  - a) Legislative and regulatory framework in place in supported countries for the management of POPs, and chemicals in general;
  - b) Strengthened and sustainable administrative capacity, including chemicals management administration within the central government in supported countries; and
  - c) Strengthened and sustainable capacity for enforcement in supported countries.
32. The GEF Strategic Objective 2: Partnering in Investments for NIP Implementation aims at reducing POPs production, use, and releases as well as the stress on human health and the environment caused by POPs
33. The exact nature of contributing interventions would be detailed in each country's NIP and they would phase-out and destroy POPs in an environmentally sound manner, and/or use of substitute products and alternative practices that prevent or reduce the generation and/or release of POPs.
34. Particularly project *Outcome 3: PCB management with the demonstration projects and practical*

*implementation of the ESM system* will contribute to the indicators of the GEF POPs Strategic Objective 2. SO-2 indicators reported towards are:

- a) POPs phased-out from use (tons and cost per ton per compound);
- b) POPs destroyed in an environmentally sound manner (tons and cost per ton per compound and mode of destruction);

Further, the GEF Strategic Objective 2: indicator

- c) Reduced exposure to POPs, measured as the number of people living in close proximity to POPs wastes that have been disposed of or contained.
35. Is also relevant to the project that the releases and human exposure of PCBs during handling and storage will decrease thanks to introduced PCB guidelines, equipment identification activities as well as phasing out of PCB containing equipment.

b) **PROJECT DESIGN**

**Baseline scenario**

36. Uruguay finalized its NIP for the Stockholm Convention in 2006. During the NIP development, the following deficiencies for proper PCB management were identified (NIP, Table 3.24, page 56):
- Insufficient regulatory instruments for management
  - Incomplete or insufficient mechanisms for the identification of PCB-polluted equipment
  - Pollution risks in maintenance operations
  - Unsound management and disposal of equipment withdrawn from service
  - Lack of a national infrastructure for the environmentally sound treatment or disposal of wastes contaminated with PCB dielectric oil.
  - Risks to human health and the environment associated to sites possibly contaminated by PCBs
  - Insufficient capacity in institutions and companies for the suitable management of PCB-contaminated equipment.

*Regulatory Baseline*

37. Uruguay has the necessary legal basis for the environmental management of chemicals and for the approval of the implementation of specific regulations. Article 20 of the Ley General de Protección del Medio Ambiente (LGPA) marks the importance that national legislation assigns to the suitable management of chemicals, especially those considered toxic or dangerous. The MVOTMA by means of its National Directorate for Environment (DINAMA) is responsible for determining the applicable conditions for protecting the environment, during all stages of their use and management.

38. Despite of the legal framework for the environmentally sound management of chemicals and for the approval of specific regulations, there is yet no regulation that specifically deals with the PCB issue. This means that no mandatory management requirements for PCB are enforced, e.g. no mandatory declaration nor labeling nor storage conditions nor disposal requirements are in place. To this end, a specific regulation for PCB is being drafted during PDF-A phase covering the life cycle of PCB-containing equipment, oils, materials and wastes and related activities. There is the strong commitment to its public consultation and approval before the end of 2007, before the project starts. This PCB regulation will ensure a clearer and stricter responsibilities and rules, but much of the technical guidance on the application of the regulation is missing

#### *PCB sources*

During the NIP, a global estimation of transformers and capacitors was made by means of surveys sent to industries and other possible PCB-holders. The figures and estimation criteria are presented in Annex V – PCB findings. During this survey neither the PCB content nor its location of the individual transformers could be obtained. The survey concluded that the number of transformers is over 40.000.

Taking this into account and in view that the NIP's budget was slightly over USD 500,000, a more strategic use of the resources was decided. A comprehensive inventory would have costed over USD 1,600,000 (ca. USD 40/analysis) exclusively dedicated to the analysis of each piece of equipment, without including sampling, conditioning and transport costs, among other. This would have left no room nor resources for other activities but PCB. Moreover the local PCB analysis capacity is not enough (2 labs and 6 samples/week) and it would not have been cost-effective, since many samples should have been sent abroad.

The approach used enabled the country the development of the NIP studies in other areas like unintentional emissions, stockpiles, contaminated sites, awareness raising among others, as included in the NIP document.

In the scenario summarized above it was not possible to develop a comprehensive inventory due to lack of time and budget. However, we are fully aware that the inventory process is key and thus want to do it in a very strategic and comprehensive way during the MSP. To this end, a technical proposal for legal framework was drafted during the PDF-A (See Annex VIII), which establishes the obligatory declaration of equipment, oils and wastes containing PCB. Said is supported by chemical analyses and defines the scenario that assures the identification of them during the MSP implementation, while gives a framework for the inventory sustainability in time.

Field activities related to inventorying were not considered during the PDF-A phase due to the limited resources (USD 45,000) if compared to the inventorying task. However, advances were made for the identification and analysis of PCB-containing transformers, that led to the development of a statistical Monitoring Plan for UTE as it is the major transformer holder. Said is based on the UNIT 749-91 standard "*Sampling plans for the attribute inspection of isolated lots defined by quality limit (QL)*" (equivalent to ISO 2859/2-1985) This will support UTE's declaration and analysis scheme in the short term, the results of the Plan will be part of the MSP and will serve to the elaborate a much more comprehensive inventory in the medium term.

39. The NIP's preliminary global estimation was made mainly for transformers. It is based on very rough assumptions, such as the total amount of transformers and the age of it. This work concludes that UTE (the Public Electricity Utility) is the holder of 95% of transformers in Uruguay being the sole power generation and distribution entity.
40. It also helps to understand the scope of the practices in UTE related to electrical equipment and its potential PCB contamination. PCB tests (screening + chromatographic verification) are performed during maintenance operations which eventually would produce an inventory in the very long term. Since this testing was done purely for safety reasons during maintenance operations not for inventorying, this process is rather random and lengthy, rendering it inefficient for inventorying purposes. Thus the data collection is far from being an inventory.
41. Since the number of equipment in the generation and transmission is much lower (200 pieces) than that in distribution (40.000 pieces), the above mentioned tests covered *all* the transformers in the power generation and transmission, and all the equipment in the distribution branch that failed and undergone maintenance representing *about 10%* (4,000 pieces). Out of these 150 pieces were identified as above 50 ppm PCB. These generated a set of criteria (year, origin and brand) for further identification of potentially PCB-containing equipment and three classes were established: high, medium and low contamination probability. This set of criteria was applied to the whole of the distribution transformers and 946 were identified as potentially PCB containing (high 273, medium 276 and low 367). Up to now (2007) only 174 pieces corresponding to high probability, were analysed. Out of this 52 were above 500 ppm and 36 between 50 and 500 ppm. The number of cross contaminated equipment is therefore not considered and is remains unknown.
42. Data on transformers from private sector companies is still missing. It is estimated that about a hundred companies are potential PCB holders. Due to the lack of time and funds, the inventory process has been unable to undertake site inspections and physical testing at these sites.
43. From the information gathered by UTE, 65 tons of capacitors were identified, out of them 15 tons were exported for disposal, 4,6 tons in 1998 and about 10 tons in 2006. According to UTE's representatives there are still some capacitors which are identified, in some cases operative and awaiting to be substituted and disposed. (See Annex V)
44. Regarding capacitors and other electrical equipment outside UTE, no conclusive information for extrapolation could be gathered. Some 150 capacitors were identified belonging to 77 companies, out these only 24 were declared as PCB capacitors. No countrywide estimation for capacitors is available so far.
45. In UTE, the majority of the transformers is in the distribution sector and is estimated to about 40,000 pieces. Some 10,000 devices are brand-new and were never maintained. Thus they can be excluded from being PCB-contaminated. There are no detailed estimations on the quantity of cross-contaminations with the 26,000 devices. Testing of these transformers need

extended analytical efforts and possibilities. Comparisons with other countries may lead to total figures of contaminated oil transformers between 4,000 and 20,000 pieces.

46. Due to time and analytical possibilities the NIP process did not investigate contaminated sites. These shortcomings were identified during the NIP development and approval process received great attention.

#### *Management and maintenance of potentially PCB containing equipment*

47. As mentioned before UTE holds 95% of the transformers share in the country and is by far the most developed in terms of PCB management. In this sense, only UTE uses an internal guideline for PCB handling etc. Most of other PCB holders or possible holders are not aware of the PCB problems or are not taking any practical steps for reducing releases and exposure in their practices.
48. UTE's Central Workshops and oil storage in Montevideo have been assessed for their safety and efforts of minimizing releases and exposure of PCBs. Though the practices applied are in general appropriate, some management and storage practices for transformers should be reconsidered and upgraded e.g. some transformers in the reclassification process are stored on bare soil, this could lead to leakages and PCB soil contamination.
49. Today the warehouses for suspected cross-contaminated transformers are full. Therefore urgent actions need to be taken in order to reduce risk to humans and the environment. This includes the upgrading of existing stores and warehouses in UTE and the construction of a new one for the private sector. This is due to the UTE's policy of not allowing the use of their storage for the private sector. Involved personnel must be trained and equipped according to international practices. Preparation works for proper transportations should be done at those sites.
50. Above mentioned storage activities require proper testing of the suspected equipment, especially transformers, soils underneath leaking devices and storage tanks in order to take urgent measures for the protection of humans and the environment.
51. In relation to repair activities for the private sector, there are two repair shops for transformers: Partiluz and Urutransfor. A visit to Partiluz during this MSP development showed that they are aware of the possibility of PCB contamination in transformers oil. Consequently they test incoming devices by Chlor-N-Oil test kits to accept the equipment to be repaired at the facility. PCB contaminated equipment is rejected.
52. The non existing analytical capacity for PCB determination would pose a high risk that untested transformers would be repaired or disposed of in an inadequate way, rendering any action ineffective.

## *PCB Disposal*

53. In Uruguay there is no facility for disposing high concentration PCB oils and contaminated equipment. 68 ton including transformers, capacitors, Askarels and oils, contaminated metallic equipment parts and manipulation materials were already disposed by an European licensed facility in 1998 and 2006. The last was first planned to be done in 2002 but it was postponed until 2006 due to budgetary problems. A similar amount is expected to be disposed subjected to resources availability. (See Annex V)
54. Currently, oil between 50 and 500 ppm is diluted with PCB-free oil under 50 ppm PCB and is then burnt in the thermal generation facility. This practise can be assumed to give rise to PCB releases during handling or combustion. The uncontrolled low-temperature combustion of PCBs emits often significant amounts of dioxin, and in particular furans, releases, hence there is a need to evaluate the current practice and perform analytical test for determining the safety of the operation.
55. Exportation to Europe for final disposal is economically not viable due to the high amount of waste. Alternatives on national basis must be found for the disposal. Ideas like using de-halogenation technologies have been considered. Other technologies may be considered as well.
56. In summary, there exist no centralized or company-wise PCB management system (ESM) in place in Uruguay. There is a clear need for an organized Environmentally Sound PCB Management system and a National Plan for PCB Management
57. A National PCB Management Plan would comprise of action and responsibilities from all governmental stakeholders, NGOs and the private sector but due to lack of human resources, expertise, and funding, such a system has never been developed nor put in practice. This systematic approach for management of PCBs would include a proper database and tracking system for identified PCB equipment. This Environmental Sound Management system will cover as well all interim storages and disposal facilities as far as they are established.
58. Immediate needs to be developed in parallel with the over-arching National PCB Management Plan is development of legally binding guidelines strengthening for handling, storing, transport and disposal guidelines as well as assessment of the safety of the current practices. The PCB equipment identification needs to be continued and supported with appropriate possibilities of determining PCB concentrations in transformer oils. Importantly, also the administrative practices both at governmental and company level needs to be developed for having a understanding of the PCB situation at all times.

## **Project scenario**

59. The MSP project, its outcomes and activities, are built on the NIP PCB action plan and addresses outstanding issues such as refining the PCB inventory, resource mobilization to withdraw and dispose of PCB-containing electrical equipment and public involvement in the implementation process.
60. With GEF assistance, a comprehensive PCB environmentally sound management system (ESM) both for the authorities and PCB holders will be developed. These will be developed in consensus of the involved stakeholders, the government, public and private entities, and NGOs. The implementation of these ESM will provide the backbone of the National Plan for PCB Management.
61. For supporting this effort the project will identify and develop all the necessary tools, guidelines and practices, which would assist in implementing the PCB ESM system. At central authority level, this includes necessary regulations, guidelines for all stage of the PCB lifecycle and other instruments which be developed to support the ESM system and the financial mechanism site inspection tools, methods for PCB testing, laboratories and data reporting formats will be part and parcel of the overall package.
62. Trainings and workshops will be held at governmental and local levels, which will build the necessary technical expertise for the practical implementation of the ESM system. Detailed countrywide PCB inventory will be developed, through inspections.
63. As mentioned, Uruguay lacks on analytical capacity for the identification of PCB contaminated equipment and contaminated sites. Contaminated sites are not evaluated and are used for whatever purpose. In the project scenario the actual analytical capacity would be greatly improved. Such a strengthened analytical capacity will be crucial for the law enforcement and sustainability of the project approach.
64. At PCB holder level, ESM, will mean developing and putting in effect proper maintenance practices of the electrical equipment, as well as appropriate storage, transport and disposal operations. The project will review existing practices and installations of UTE for conformity with international practices and to upgrade them if required. This action will be replicated and extended afterwards to other potential PCB holders in the private sector.
65. In the project scenario alternatives for the local treatment and disposal of equipment and waste containing PCB will be evaluated. The project will include feasibility study on that alternative disposal options for contaminated oil (<2,000 ppm PCB).
66. PCB containing equipment in the most critical condition will be collected and disposed of through selected demonstration projects. The experiences of the demonstration projects will be available for implementation throughout the country.
67. The project will demonstrate sustainable cooperation among the Government, private sector,

and NGOs, by involving them in the decision making process throughout the development of the PCB ESM system, and by providing additional financial resources for the implementation of the PCB ESM at various levels.

68. With these action the ESM system will overcome organizational, technical and practical barriers, which impede the successful implementation of PCB related obligations of the Stockholm Convention in Uruguay.
69. This MSP will enable Uruguay to develop a long term policy for PCB management, refining the actions of the NIP concerning PCBs, validating short, mid- and long-term goals in the removal of PCB-containing electrical equipment.
70. The project implementation strategy will be based on the following issues:
  - established and well-defined cooperation among governmental bodies, local authorities, private sector and NGOs;
  - accountability of the project-related work and expenditures of all involved parties; and
  - clearly defined monitoring indicators and methodologies throughout the implementation.

### **Objectives:**

71. The objective of the project is to reduce and eliminate the threats to human health and the environment posed by PCBs in Uruguay. It also aims to strengthen the country's national capacities to manage the PCBs in an environmentally sound manner, and integrate PCB issues in ongoing efforts through a National Plan for PCB Management

### **Goals:**

72. The principal goals of the project will be:
  - a) capacity to solve the PCB issues at the country level through strengthened institutions and infrastructure;
  - b) an environmentally sound PCB management system by developing and adopting policies, guidelines for managing and disposal of PCBs;
  - c) detailed countrywide PCB inventory;
  - d) identified PCB disposal options and facilities;
  - e) removal and disposal of PCBs and PCB-containing equipment by demonstration projects; and
  - f) public awareness and well-trained technical personnel involved in PCB management.
  - g) replicable programme for National Plan for PCB Management for national or international use;



73. The project consists of three main clusters of activities:
74. *The first cluster (Outcome 1)* is related to organizational, awareness and training activities. It will result in the establishment of the Project Steering Committee (PSC) and agreed plan of actions. The identified concept of environmentally sound management of PCB will be reached through the development of different alternatives and round table discussions by the involved parties. Phase I will also identify the demonstration projects, dealing with PCB disposal and site clean up through negotiations with local authorities.
75. *During the second cluster (Outcome 2)* of the project, the environmentally sound management (ESM) of PCB system will be established both at authority and PCB holder level. This, includes legal instruments, guidelines and practical tools for identification, labelling, maintenance, collection, transportation, storage and disposal of PCB-containing equipment and wastes. It will further establish the format for the PCB inventories as well as the reporting requirements and procedures connected to it. This phase will also result in setting-up the safety measures avoiding releases of PCB during the implementation of the ESM measures as well as evaluation of local treatment and disposal alternatives for cross-contaminated equipment and wastes.
76. The main output of *the third cluster (Outcome 3 and 4)* is the implementation of the ESM systems in the practice. It will identify strengths and weaknesses of the system, which will be used to refine and amend the ESM system before a countrywide introduction. All PCB-containing equipment and wastes for the demonstration projects will be identified and labelled. The countrywide detailed PCB inventory estimation will also be performed. The equipment and wastes, which are in the most critical condition will be collected and disposed of. Owners will be benefited by the project if they participate in the project (partnering). During this phase the interim storages for the demonstration projects will be identified and upgraded to international practices. Also site clean up of highly contaminated sites will be piloted. Environment monitoring measures will also be introduced at these locations. Finally a National Plan for PCB Management will be drafted and agreed.

## **Activities:**

77. The activities to reach these objectives are as follows:

### **Outcome 1: Project set up and monitoring**

#### **Activity 1.1: Establishment of the Project Steering Committee (PSC) and definition of responsibilities and work plan**

78. A Project Steering Committee (PSC) will be established. Members will be nominated at the governmental level. The Committee will oversee the activities of the project and the project teams. The PSC will draft a tentative Work Plan, based on the Work Plan found in Annex I, for the Project, which will be presented to the stakeholders. The Work Plan will include the required human resources (task teams) and for each the following will be defined and included in it:
- the job description
  - expected outcomes
  - Task Team leader qualifications (ToR)
  - reporting and communication between the task teams and other members of the project team
79. Strong emphasis will be put on private sector and civil society involvement during the project execution. Special attention will be given to achieve the overall acceptance of the project, its activities and outcomes, this will be done by means of an Awareness Raising Strategy designed in cooperation with the Project staff by a communication expert hired by the Project. All decisions of the committee, such as respective responsibilities, timelines and budget will be clearly communicated to the concerned participants of the project. The PSC will also be in charge of the revision, comment, amendment and final approval the work plan after discussion with stakeholders.
80. For those activities, which require expertise not available at the National Executing Agency (NEA), will be implemented through sub-contracts through public tenders. Submitted tenders will be reviewed and evaluated by the PSC based on an evaluation system. It will include the review of all applicants' level of expertise, human and financial resources and work done in the required field. The mechanism of procurement of UNDP will be used for international purchases and sub-contracting.

#### **Activity 1.2: Presentation and consultation of the government strategy in phasing out of PCB (building block of the National Plan for PCB Management), ongoing activities as well as the work plan of the project.**

81. An inception workshop will take place to inform stakeholders and potential owners of PCB about the legal framework for PCB, the project, its drafted Work Plan and the expected outcomes. The Awareness Raising Strategy will be also introduced. The inception workshop

will seek to involve all the stakeholders and should achieve a wide attendance to it (see Chapter 5). The workshop will launch the activities and start discussions on the ESM measures and on the selection process for the demonstration projects. The working areas of the task teams will be identified.

82. This workshop also aims to raise questions on:
- how can a process be developed that allows competent authorities to actively participate in the PCB management?
  - how can co-operation be ensured between the authorities and the owners of PCBs?
  - how can local communities directly participate in the disposal and awareness process?
  - what improvements can be introduced in the relevant regulations?

PSC will inform the involved authorities and stakeholders about the outcome of the meeting

### **Activity 1.3: Final definition of the project activities and its management**

83. The Work Plan will be amended to include comments made under Activity 1.2, the PSC in coordination with the Project's permanent staff and the major stakeholders.

### **Activity 1.4: Selection of demonstration projects.**

84. This activity will be split in time into two stages, a first stage consisting in the setting of criteria for project selection, submission and pre-screening of project proposals and a second stage for the project selection itself done by the PSC. This last stage will take place only after the site evaluation under Activity 3.1.2. is completed.
85. Representatives from the involved authorities will be invited for a two-day discussion, which aims to raise awareness on the project and finalize the *criteria for the selection of the demonstration projects*. These demonstration projects will cover all aspects related to PCB. They will include safe handling of expired equipment, packaging, stowing for safe transportation, site clean up and requirements for treatment and final disposal. That holds for the practical execution as well as for documentation related to it.
86. The criteria for the selection of the demonstration projects will include the risks posed for the environment and human health, human resource capacities in managing PCBs, quantity of equipment to be collected, availability of possible storage locations, its specific problems concerning PCBs, level of PCB contamination and the proposal's contribution to the overall project outcome. A list of criteria will be presented to the participants in order to identify the most suitable ones. Participants will be asked to describe in what way they can support the project and the planned activities with the demonstration projects. At the end of the meeting the criteria for selection will be finalized and submitted to the PSC for approval.
87. Followed, involved authorities jointly with the owners of the PCB will submit their proposals to the PSC, according to developed criteria. This call for proposals will also look for the

inclusion of a disposal demonstrative project to include small private owners, thus preventing unsound disposal. For those proposals involving site clean up, a pre-screening study will be performed based on site-history among others to narrow the list of proposals for demonstrative projects to be considered for Activity 3.3. Regarding contaminated sites, the pre-selected sites will be evaluated in depth accordingly under Activity 2.1.6.

88. *At least three* demonstration projects will be selected, in order to establish the average situation of the country. A priority list containing the non-selected sites will be established and submitted to the PSC and NEA for further actions.
89. The PSC will select the demonstration projects and a Memorandum of Understanding will be signed between the National Executing Agency, the involved authorities of the selected demonstration area and the owner(-s) of the PCB covering the roles and responsibilities of each party.

**Outcome 2: Institutional and regulatory strengthening, capacity building and development of an Environmentally Sound Management system for PCBs for the authorities and PCB holders.**

**Output 2.1. Capacity building and strengthening of the PCB management in the public sector (authorities) and development of the building blocks for introduction of Environmentally Sound PCB management among the PCB holders.**

90. Task teams will be set up for the different activities, which will be carried out under institutional strengthening and capacity building component of the project. Task teams will be trained to upgrade their knowledge in the required fields such as identification of PCB devices, sample test facilities for transformer oils and other PCB-containing oils, proper waste handling and management of PCB-containing equipment, aspects of financial incentives for PCB management, treatment site clean up and disposal. The training part will be based on international practices for handling and collecting PCBs.
91. Resulting from various of the following activities a set of guidelines will be developed, these will be designed, edited and printed, and will support the training and awareness raising activities.
92. Upon received professional training the task teams will develop the various building block of the ESM system as the roles and responsibilities for the authorities. These activities include the following:

**Activity 2.1.1: Development of PCB handling guidelines and procedures as well as sampling and analytical capacity for the identification of PCB-containing equipment.**

93. Existing PCB regulations and guidelines will be checked for suitability and regulatory gaps will be addressed. The project team will organize a meeting for national and international experts to discuss the requirements for maintenance and safe disposal of PCBs in Uruguay and the applicability of the existing international standards and practices.

94. The guidelines shall include a requirement of the PCB holder to develop a National Plan for PCB Management, including identification, safety issues during operation (including emergency situations) as well as disposal and end-of life action.
95. One of the task teams will develop guidelines to identify PCB-containing equipment. It will include procedures for sampling, use of the field test kits and on-site analytical equipment, forms for data collection and reporting. If applicable, guidelines and practices of UTE will be used as a starting point.

#### **Activity 2.1.2: Development of a centralized database for PCB**

96. A database will be developed where all PCB containing equipment will be entered to that system for data collection and device tracking. This database is envisioned to be compatible with UTE's, and housed in DINAMA. A set of manuals (user, maintenance, etc.) will result from this activity. It is foreseen that the developed database will also serve as reporting tool of existing PCB to the secretariat of the Stockholm Convention.

#### **Activity 2.1.3: Development of procedures for labelling electrical equipment.**

Development of a methodology for labelling electrical equipment according to relevant international guidelines to allow equipment traceability. This will include the design and printing of the labels for a) equipment from which samples were taken, b) PCB free equipment and c) PCB containing equipment.

#### **Activity 2.1.4: Development of procedures for collecting PCB-containing equipment and a reporting format.**

97. That includes as well public entities outside UTE. One of the task teams will develop the procedures for collecting the PCB-containing equipment and wastes which include the registration of the companies that can provide these services to the PCB owners. The procedures for reporting of the collection and the regular update of the inventory will also be developed. Additionally a reporting format for the transport operations will be developed.

#### **Activity 2.1.5: Development of safety guidelines to prevent PCB releases to the environment from operational equipment and from storage facilities as well as scrap operations.**

98. The task team will develop the binding guidance on minimum safety measures to prevent release to the environment from the PCB-containing equipment according to international practices. Guidelines for the safe storage and handling, transport of equipment and oils and associated waste will be developed. These will include physical and organizational safety measures including obligations for staff training etc. As a result a guideline document will be published. This information will be available for first responders such as the firemen department, police department, etc, through the National Emergency System.

99. Guidelines for minimizing possibilities of unsafe PCB contaminated scrap handling will be developed to support legal framework and to reduce risk to health and the environment during such operations.

**Activity 2.1.6: Development of a strategic approach to PCB-contaminated sites.**

100. A task team will be established for the development of guidelines for the evaluation of contaminated sites. This team will finally provide clear technical assistance with suspected sites. These guidelines will provide methodologies for the identification, sampling, testing, characterization and evaluation of the contaminated sites, including guiding principles on how to set priorities for their remediation and hints for the preparation of a site remediation plan. It should also include a methodology for the environmental sound intervention of the identified sites. They will support the activities held in 3.3.2 and will be amended according to the lessons learnt during the site clean up experiences. In turn the study cases concerning site demonstration projects will be documented and be included in the guidelines as practical examples made in the country.
101. The pre-selected sites for clean up will be evaluated accordingly under this activity. The evaluation reports will be submitted to the PSC for final selection of demonstration projects (Activity 1.4).

**Activity 2.1.7: Preparation of guidelines for a good maintenance practice and risk reduction practices (human safety measures, cross contamination avoidance).**

102. Guidelines will be developed jointly with UTE and other major users of PCB-containing equipment to protect human health and the environment during handling and maintenance of the electrical equipment.
103. The activities covered by the guidelines include routine activities by PCB equipment owners and service companies for transformers, but as well other entities that could be involved by cases of accidents, such as fire brigade etc. Standardized procedures will be developed for draining PCB contaminated oils from the transformers and its treatment.
104. Guidelines developed will further include site-wise emergency planning taking into consideration the particular risks with PCBs.

**Activity 2.1.8: Development of safety measures for the 5 to 15 kVA transformers owned by UTE.**

105. UTE owns about 10,000 transformers of the size between 5-15 kVA. They are filled with about 50 to 80 litres of oil. Unfortunately they are not equipped with a bottom valve or any other possibility for sampling. Hence their sampling can only be done in appropriate workshops. Leakages are more seldom than with bigger transformers. The technical life time for such equipment is about 10 to 12 years. That means that most of them will be phased out within the next couple of years because of electrical failure. A team of specialists will work

out best available safety measures considering risk for health and environment during sampling and maintenance, avoiding spillages with these small transformers. These guidelines will be very helpful for the proper handling and correct identification of PCB containing equipment when phased out or in case of maintenance.

## **Output 2.2: Development of capacities for evaluation, control and disposal of PCB**

### **Activity 2.2.1: Development of analytical capacity.**

106. As stated earlier, Uruguay lacks on analytical capacity for the identification of PCB contaminated devices and contaminated sites. Consequently materials are stored or even disposed of in inadequate way. A lab of DINAMA will be upgraded and equipped accordingly to support the Activity 3.1.2. This includes analytical capacity for PCB screening in oil and for the chromatographic verification in oil and environmental samples. The chromatographic analysis capacity will furthermore serve for controls and later on with sampling of POPs pesticides and their contaminated sites.
107. The strengthened analytical capacity will be crucial for the law enforcement, for the monitoring of air quality in those workplaces and interim storages working with PCB-containing equipment and oil.

### **Activity 2.2.2: Evaluation of alternative disposal possibilities for oils above 50 and below 2,000 ppm PCB.**

108. It is estimated that the majority of the oil cross contamination is below 2,000 ppm PCB. Disposal in European facilities would require at least 2.50 USD/ kg. That is economically not viable. Thus the objective of this activity is to develop the national capacities for the treatment of these wastes.
109. Treatment and disposal alternatives will be studied in the light of BAT/BEP for potential adoption. This activity includes the social, technical and economical evaluation related to it as well as recommendations for their local implementation. This evaluation may consider as well reclassifications of contaminated oil transformers that are refilled with fresh and PCB-free oil. .
110. The evaluation of the current practice of burning diluted oil (< 50 ppm PCB) in the boiler at UTE's thermal generation facility is also included.
111. The outputs of this activity will be useful for the implementation of a countrywide phase out and elimination section of the National PCB Management Plan.

### **Output 2.3. Adoption of the Sound Environmental Management ESM system for authorities and PCB holders**

#### **Activity 2.3.1: Discussions involving government stakeholders, major PCB users and representatives of involved authorities and approval of the proposals.**

112. A three-day 2<sup>nd</sup> Round Table Discussion will be organized inviting all the stakeholders and other relevant participants. Before the meeting, all technical documents prepared in this phase of the project will be submitted to all participants. The meeting aims to reconfirm that the products are acceptable for all parties and to identify the weaknesses or errors before finalization.

#### **Activity 2.3.2 :Amendment of the legislation and guidelines according to the approved practices to improve legal framework for PCB management and disposal.**

113. Based on the comments on the 2<sup>nd</sup> Round Table Discussion, the technical documents will be approved by the PSC. Amendments for legislation additional technical guidelines will be put forward for enactment/adoption

### **Outcome 3: PCB management with the demonstration projects and practical implementation of the ESM system.**

#### **Output 3.1: Updating of the national PCB - containing transformers inventory.**

##### **Activity 3.1.1: Training on practical implementation of the ESM for personnel involved in PCB handling.**

114. Both public owners and private companies with potentially PCB contaminated equipment will participate in training courses for handling of that equipment. The training will consist of a theoretical part, be followed by practical demonstration based on the guidelines and procedures developed during the Outcome 2 of the project.

115. Special training courses will be provided for fire brigades.

##### **Activity 3.1.2: Identification of PCB-containing transformers, PCB waste and sites contaminated with PCBs.**

116. This activity holds for UTE and will implement the Monitoring Plan developed during the project formulation and will be based on the approved guidelines, task teams will:

- identify the transformers;
- take samples for testing from the transformers;
- document the status of the transformers; and



- ship the samples to the designated laboratory.
117. The monitoring will consist of a first screening test by using L 2000 Analyser and positives checked by GC analysis. Oils in tanks and soil will be tested by GC-ECD. A lab of DINAMA will be upgraded and equipped according to fit this purpose.
  118. This activity includes the sampling of about 30 sites in order to determine the PCB contamination by GC-ECD. The sampling of the pre-selected sites for demonstration projects will be covered under this activity, therefore these will be considered as priority in the execution of this activity. The analytical results will be submitted to the Task Team working in Activity 2.1.6. for it evaluation.
  119. Task teams will provide the collected and generated data to the NEA for its feeding into the central database. Additionally UTE will continue with their own identification and inventorying activities through their maintenance works.
  120. The local fire-fighting brigade will be informed about location and status of all PCB containing devices.

**Activity 3.1.3: Development of a detailed inventory of PCB-containing equipment and wastes and their appropriate labelling**

121. This activity will result in a detailed inventory of all PCB equipment with specifications on quality, quantity and location condition. The transformer data will be registered in a special form, collected, processed and put into the database, mentioned earlier. Information on risk assessment measures (like age of the electrical equipment, status of the electrical equipment, etc.) will also be recorded. Electrical equipment in critical conditions will be prioritised for immediate action.
122. It includes the uploading in the central database of the data corresponding to the monitoring results, data gathered through the demonstration projects, the declarations from proprietors other than UTE, as mandated in the foreseen legal framework. Transport operations involving PCB-contaminated items stored (equipment, oil, wastes, etc.) will be also reported to the central database using a specific format developed under Activity 2.1.4. A priority list for phasing out will be also developed.
123. Task teams will label all PCB equipment and waste according to the officially approved format.
124. Additionally a rough estimation of the amount of PCB-containing capacitors will be done by a technical task team in consultation with UTE and the involved private sectors. A disposal alternative will be defined accordingly.
125. After this Project finishes, DINAMA will continue with the periodic update of the inventory based on UTE's reports and the mandatory owners' declarations.

**Activity 3.1.4: Development of a time table for phasing out PCB-containing electrical equipment.**

126. Task team will prepare a timetable with priority order for phasing out PCB-containing electrical equipment based on risk criteria. The first priority will be given to leaking devices and those which are located in critical places (food processing industries, hospitals, schools, etc). This activity will also establish the legal deadline and milestones for the phase-out process depending on the priority order.

**Output 3.2: Interim storage of PCB-containing equipment and wastes**

**Activity 3.2.1: Identification of possible interim storage location(s)**

127. UTE will run their own interim storages according to the identified standards. For the other owners a separate storage capacity will be identified. A task team including experts in assessing storage facilities will estimate the required storage capacity and will investigate all potential locations that might be eligible for storing PCB wastes. This process involves on-site inspections, which include environmental risks, aspects of accessibility, distance to human settlements, water bodies, site history and baseline, etc. based on these the task team will define an priority order for the locations. Financial implication for upgrading the facilities will also be developed. These assessments will be submitted to the PSC. This activity will advance in the facilitation of the procedure for environmental permissions.

**Activity 3.2.2: Selection of interim storage location(s).**

128. Based on the technical assessments and in consultation with authorities, DINAMA will approve the most suitable locations for interim storage of PCB equipment and associated waste for the private sector. After selecting the most suitable sites, MoU with local authorities and the owners of the sites will be signed for cooperation to upgrade the sites as well as for regular operation. The construction of the storage will not be covered by GEF financing. Contacts with the private sector have shown interest in the construction of such storage.
129. This activity will advance in the facilitation of the procedure for environmental permissions and the construction of it.

**Activity 3.2.3: Upgrading the interim storages owned by UTE.**

130. Experts will develop a feasibility study for upgrading the storage locations to meet the requirements for environmentally sound safe storages of PCB wastes. This activity will follow the guidelines produced in Activity 2.1.5. The feasibility studies will consider the design of the facility, emergency precautions, necessary infrastructures as well as human resources needed. Staff will be trained on handling PCB-containing wastes. This activity will advance in the facilitation of the procedure for environmental permissions. During this

activity the physical upgrade of the storage which will be covered by UTE.

**Activity 3.2.4: Development and introduction of environmental monitoring systems at the interim storage areas.**

131. A PCB monitoring system will be established in the interim storage and working areas. Possible contaminated areas will be checked on regular basis. The exposure of the employees will also be monitored regularly. Inventory books, which will be controlled by local competent authorities will be provided and regularly updated. Information about these sites will be made available to the National Emergency System.
132. All transport of PCB-contaminated items stored (equipment, oil, wastes, etc.) will be reported to the central database as per Activity 3.1.3 and to the POPs focal point in order to fulfil the reporting requirements under the Stockholm Convention.

**Output 3.3: Capacity building for disposal and site clean-up by demonstrative projects**

**Activity 3.3.1: Demonstration of phase-out, collection, storage and disposal of PCB equipment.**

133. As mentioned in Activity 1.4 the project will undertake PCB phase-out and collection activities and provide for appropriate treatment and final disposal in the selected demonstration projects as agreed in the corresponding MoU. Operations considered include on-site waste separation and cleaning (PCB-oil, metal and copper parts) with selective disposal channels, re-use of the electrical equipment or off-site disposal.
134. This will be implemented preferably by commercial companies with experience in hazardous waste management and will follow internationally accepted practices and the applicable BAT/BEP. The company will be selected through public tendering under the guidance of the PSC.

A specific risk analysis of these activities, targeted at reducing exposure of humans and the environment will support in the implementation of the safety measures as well as in the selection of required equipment and materials. These demonstrative activities will follow strict safety measures, according with international standards and practices to minimize risks and impacts to humans and the environment. These will be supported by organizative measures, specific training and by the provision of adequate working materials, including personal protective equipment in quality and quantity for the tasks to be carried out.

135. The practical experiences learned from the selected pilot operations will be crucial inputs for the development of the countrywide phase-out and elimination plan (activity 4.2). These pilot operations will be executed under the leadership of this team in joint cooperation with the involved authorities. The pilot projects will also be controlled by the PSC.

### **Activity 3.3.2: Demonstrative site clean-up**

136. The NIP report reflected several times to the problems with contaminated sites. The site evaluation by means of PCB soil analysis under Activity 3.1.2 will identify contaminated sites. This activity aims at building the capacities in Uruguay among the government, organizations and industry to know what to do in such cases by providing practical experiences. To this end *at least one* site will be selected for demonstrative clean up activities as per Activity 1.4. The selection will look for a site that serves as *case study*.

These activities intend not only at demonstrating how contaminated sites should be cleaned from a technical point of view but how they are cleaned up in a safe and environmentally sound manner. Thus the risks for humans and the environment, involved in the activities will be assessed and the required international standards and practices will be followed so as to minimize risks and impacts to humans and the environment. This mitigation strategy will be supported by organizative (procedures, protocols, etc.) measures, specific training and by the provision of adequate working materials, including personal protective equipment (disposable masks, overalls, gloves, boots etc.) in quality and quantity for the tasks to be carried out.

137. The site clean up will be undertaken by commercial companies with experience in PCB site clean up and will follow internationally accepted practices and the applicable BAT/BEP as identified in the mitigation strategy. The company will be selected through public tendering under the guidance of the PSC and NEA.

### **Outcome 4: Elaboration of a National Plan for PCB Management based on the demonstrative activities**

#### **Activity 4.1: Countrywide inventory estimation of *all types* of PCB containing equipment and waste.**

138. Based on the activities during the Outcome 3.1 of the project, countrywide inventory estimation will be developed. This estimation will cover all types of PCB containing equipment and waste.

#### **Activity 4.2: Drafting of a detailed National Plan for PCBs Management.**

139. A National Plan for PCB Management will be drafted based on the experience gained and outputs of the previous activities. This activity will compile all the inputs already generated in the previous activities into a document. This will be done by the Project's permanent staff. The plan will consolidate a set of actions to be implemented at national level, in order to continue the actions started during this project. That includes the time lines, human resources needed, costs and financial mechanisms for the countrywide activities.

140. This action plan will also include an assessment of the country and global benefits achieved with it. The Plan will be submitted to the PSC for its approval. A Memorandum of Understanding covering the roles of each involved party will be signed.

## **Outcome 5: Project closure and diffusion**

### **Activity 5.1: Final workshop and public awareness at the national and regional level**

141. At national level a final workshop will be organized to present the National Plan for PCBs Management and the results obtained during the Project execution in terms of ESM system, legislation, site clean up demonstrations, waste disposed, level of inventoried equipment, human resources trained, successful agreements and future actions. The Project's terminal evaluation report will be discussed.
142. Key stakeholders, representatives from the relevant government and regional authorities, public and private sectors as well as NGOs will be present. Other concerned parties including the media will also be invited to raise general public awareness.
143. The experience and lessons learnt through the implementation of this project will be available to representatives from government and regional authorities, public and private sectors in regional countries. This will be achieved with the assistance of the **Coordination Centre for Latin America and the Caribbean for the Basel Convention**.

## Project's Logical Framework Matrix

DESCRIPTION	PERFORMANCE INDICATOR	MEANS OF VERIFICATION	BASELINE AND BARRIERS	TARGET	RISK AND ASSUMPTIONS	
<b>OUTCOME 1: PROJECT SET UP AND MONITORING</b>						
1.1	Establishment of the Project Steering Committee (PSC) and definition of responsibilities and work plan	Project Steering committee, work plan, refined budget Awareness raising strategy.	List of members and working procedures of the committee, detailed work plan, with budget allocations. Document for awareness raising strategy	Commitment towards the aims of the project  Lack of coordination	The project coordination and management established	Government, Civil Society and Private Sector commitment to establish project coordination
1.2	Presentation and consultation of the government strategy in phasing out of PCB (building block of the National Plan for PCB Management), ongoing activities as well as the work plan of the project	Workshop held, number of participants., formed task teams Project Work Plan is consulted.	Workshop report. List of participants., task teams settled	Lack of awareness on the project and its implementation	Understanding of the objectives, outcomes and activities of the project.  Recording the viewpoints of the Government, Civil and Private sector concerning PCBs management	Lack of interest in PCB management  Proper Announcement and high ranked speaker  Successful awareness raising strategy in place.
1.3	Final definition of the project activities and its management	Number of Guidelines proposed for each task team	Final Work Plan Job description for each task team and expected outcomes. List of Guidelines Task team assignation	Lack of ESM concepts	Define the tasks and outputs for each task team.	The quality of just ESM concepts will not be sufficient.
1.4	Selection of demonstration projects.	Meeting held, criteria for selection. Established. List of the preferred projects Roles and responsibilities assigned. Priority list for further actions on PCB-contaminated sites.	Meeting reports List of participants. Memorandums of Understanding	No precise data available. Lack of experience in coordinated activities between the public and private sector. Process for agreements is slow.	Consensus on criteria for the selection of demonstration projects for disposal, contaminated sites, etc. Select the demonstration projects based on the approved criteria and agreement on the responsibilities of each party. List of demonstrative projects. Priority list for further actions on PCB-contaminated sites.	No projects identified so far (lack on knowledge)  Lack of interest in participating on the discussion. Risk of finding the right participants, who can make suggestions, offers and take decisions on the discussed topics.  Detailed agenda and brief information on the discussed topics along with the criteria for selection will be communicated clearly and in advance to the concerned. Close follow-up will be undertaken to identify the right participant..
<b>OUTCOME 2: INSTITUTIONAL AND REGULATORY STRENGTHENING, CAPACITY BUILDING AND DEVELOPMENT OF AN ENVIRONMENTALLY SOUND MANAGEMENT SYSTEM FOR PCBs FOR THE AUTHORITIES AND PCB HOLDERS.</b>						
<b>OUTPUT 2.1: CAPACITY BUILDING AND STRENGTHENING OF THE PCB MANAGEMENT IN THE PUBLIC SECTOR (AUTHORITIES) AND DEVELOPMENT OF THE BUILDING BLOCKS FOR INTRODUCTION OF THE SOUND PCB MANAGEMENT AMONG THE PCB HOLDERS.</b>						
2.1.1	Development of PCB handling guidelines and procedures as well as sampling and analytical capacity for the identification of PCB-containing equipment.	Number of guidelines developed.	Guideline published.	Lack of proper legislations, procedures and guidelines on the ESM.  UTE applies an internal procedure that might be used as starting point.	To develop the ESM measures officially and in details.	Lack of commitment at the government level to develop ESM. Reluctance in the private sector for participation Knowledgeable training providers are assumed to be available locally or regionally. Including high level decision makers in the steering committee to increase commitment

DESCRIPTION	PERFORMANCE INDICATOR	MEANS OF VERIFICATION	BASELINE AND BARRIERS	TARGET	RISK AND ASSUMPTIONS	
					of the Government.	
2.1.2	Development of a centralized database for PCB	Database elaborated.	Set in place	Only a rough overview exists at UTE.	Complete database with all PCB in it, UTE and private	Specific legislation approved in time will support the process. Information is available.
2.1.3	Development of procedures for labeling electrical equipment	Guideline developed.	Guideline published.	Some labelling is done for internal purposes in UTE.	To implement the traceability system.	Specific legislation approved in time will support the process. Information is available.
2.1.4	Development of procedures for collecting PCB-containing equipment, and a reporting format for the private sector	Guideline developed.	Guideline published.	Lack of proper procedures on handling PCB-containing equipment	To develop the ESM measures officially and in details	Knowledgeable training providers are assumed to be available locally or regionally. Detailed training will be provided.
2.1.5	Development of safety guidelines to prevent PCB releases to the environment from operational equipment and from storage facilities as well as scrap operations.	Number of guidelines developed.	Guideline published.	Lack of guidelines to avoid PCB releases from working equipment and for scrap operations. UTE has its own internal standards for storage.	To develop the ESM measures officially and in details. Limit the introduction of contaminated equipment, oil, and parts into the scrap industry and reduce the risks.	Detailed training will be provided. International expert will review the draft guideline.
2.1.6	Development of a strategic approach to PCB-contaminated sites.	Guideline developed. Pre-selected sites for demonstration projects are evaluated	Guideline published. Technical reports on pre-selected sites.	Nothing in place today	Better control on contaminated sites and clear instructions for site clean up.	Lack of commitment. Lack of national expertise. International expert will review the draft guideline
2.1.7	Preparation of guidelines for good maintenance practice and risk reduction practices (human safety measures, cross contamination avoidance)	Guideline developed.	Guideline published.	Lack of guidelines for good practice for maintenance. UTE has an internal maintenance procedure in place.	To develop the ESM measures officially and in details.	Detailed training will be provided under activity 2.1. International expert will review the draft guideline.
2.1.8	Development of safety measures for the 5 to 15 kVA transformers owned by UTE	Guideline developed.	Guideline published.	Lack of proper procedures on handling, sampling, etc. for these equipment.	Safety measures for these tiny transformers	International expert will review the draft guideline. UTE will facilitate the draft agreement
<b>OUTPUT 2.2: DEVELOPMENT OF CAPACITIES FOR EVALUATION, CONTROL AND DISPOSAL OF PCB.</b>						
2.2.1	Development of analytical capacity	Analytical capacity is operative.	Equipment installed and operative. Personnel trained.	Analytical capacity by far insufficient	Installed analytical capacity to support the control and evaluation of PCB management in Uruguay	Equipment and consumptions bought and available in time. International expert will supervised this activity
2.2.2	Evaluation of alternative disposal possibilities for oils above 50 and below 2,000 ppm PCB.	Study in accordance with established terms of reference.	Final report: "National evaluation of final disposal alternatives"	Lack of national capacity for oil treatment above 50 and below 2000 ppm PCB.	Facilitate the development of national capacities for treatment of waste, equipment and oil.	Knowledgeable training providers are assumed to be available locally or regionally.
<b>OUTPUT 2.3: ADOPTION OF THE ENVIRONMENTAL SOUND MANAGEMENT SYSTEM (ESM) FOR AUTHORITIES AND PCB HOLDERS.</b>						
2.3.1	Discussions involving government stakeholders, major PCB users and representatives of involved authorities and approval of the proposals.	Technical guidelines approved.	Meeting report.	Very limited knowledge and awareness	Increased knowledge and awareness for the top target: elimination of PCB	Papers not ready for discussion, uncontrolled discussion Papers will be controlled min. 3 weeks ahead of the meeting Strong chairman

DESCRIPTION	PERFORMANCE INDICATOR	MEANS OF VERIFICATION	BASELINE AND BARRIERS	TARGET	RISK AND ASSUMPTIONS	
2.3.2	Amendment of the legislation according to the approved practices to improve legal framework for the PCB management and disposal.	Legal framework amendment proposal.	Meeting report and technical report.	Draft legislation.	To amend the legislation according to the agreed ESM measures and guidelines officially.	Lack of commitment at the government level to enact the legislations. Including high level decision makers in the steering committee to increase commitment of the Government
<b>OUTCOME 3: PCB MANAGEMENT WITH THE DEMONSTRATION PROJECTS AND PRACTICAL IMPLEMENTATION OF THE ESM SYSTEM.</b>						
<b>OUTPUT 3.1: UPDATING OF THE NATIONAL PCB INVENTORY.</b>						
3.1.1	Training on practical implementation of the ESM for personnel involved in PCB handling	Training held. Number of participants / course. Number of training courses	List of courses held. List of participants per course.	Some experience exists at UTE, but no training is done for other sectors or companies.	Safe handling of PCB equipment by the personnel involved with it	Not all people participate. International expert will supervised this activity.
3.1.2	Identification of PCB-containing transformers, PCB waste and sites contaminated with PCBs	Number of samples taken vs. number of proposed samples. Number of equipment sampled and equipment with PCB vs. number of projected equipment. Number of sites evaluated vs. number of sites proposed..	Laboratory report (quantity of samples analysed) Site sampling plan and report. Technical report on identification activities.	No proper identification of equipment and waste, exist in the private sector  No potentially PCB contaminated sites are evaluated. UTE has an identification system but needs to be improved.	Improve the equipment, sites and waste inventory for further actions .	Low interest  Law enforcement No access to the equipments will be avoided by including owners in the task teams, which will undertake the inspections.  Special training will be provided so as to reduce risks for health and the environment.
3.1.3	Development of a detailed inventory of PCB-containing equipment and wastes and their appropriate labelling	Number of inventoried electrical equipment with detailed information on composition, status and location. Estimation of PCB containing capacitors done.	Defined inventory, completed database Technical report "Estimation of PCB containing capacitors in Uruguay".	There is no proper inventory. There is no estimation of PCB containing capacitors.	To have a more detailed inventory that helps comply with the Stockholm Convention's requirements. Common understanding of priorities with PCB. All electrical equipment which was tested will be labelled. Those tested positive will receive an additional label.	The inventory will have discrepancies.  Adequate legislation will support inventorying activities.
3.1.4	Development of a time table for phasing out PCB-containing electrical equipment	Time table developed.	Time table approval.	Lack of proper planning.	Comply with the compromises derived from the Stockholm Convention.	Specific legislation approved in time will support the process.
<b>OUTPUT 3.2: INTERIM STORAGE FOR PCB-CONTAINING EQUIPMENT AND WASTE</b>						
3.2.1	Identification of possible interim storage location(s)	Selection study in accordance with terms of reference..	Final report: "Selection of sites for PCB interim storage".	No areas exist for PCB interim storage. UTE has only one interim storage exclusive for their own use.	Appropriate sites are identified.	A diffusion and training program will be implemented for the population and neighbours of the possible sites. The criteria for selection will be communicated clearly and in advance to the concerned. Enough time will be given for them to develop their proposals.
3.2.2	Selection of interim storage location(s)	MoUs signed with the involved actors. Number of companies interested in running the store.	Technical report and MoUs.	No interim storage for private sector exists.	Site is selected., store built and operative.	Social acceptance of selected sites. Interests exists in building and running the store. Complains by the sites, which will not be selected.
3.2.3	Upgrading the interim storages owned by UTE	Design developed and accepted by UTE	Upgrade done	Actual storage capacity is limited and not enough.	Interim storage of UTE as country-wide standard	Design too high, upgrade too expensive Financial support by UTE's contribution to the MSP
3.2.4	Development and introducing environmental monitoring system at the interim storage areas	Number of evaluations performed vs. number of projected evaluations.	Audit reports	There is no ESM measures at the interim storage locations	To protect humans and the environment form PCB- related exposures	International expert will audit the sites for ESM. A local quality assurance person will be assigned to control the implementation of the ESM on frequent basis.
<b>OUTPUT 3.3: CAPACITY BUILDING FOR DISPOSAL AND SITE CLEAN-UP BY DEMONSTRATIVE PROJECTS</b>						



DESCRIPTION		PERFORMANCE INDICATOR	MEANS OF VERIFICATION	BASELINE AND BARRIERS	TARGET	RISK AND ASSUMPTIONS
3.3.1	Phase-out, collect, storage and disposal of PCB equipment from the demonstration projects	Tender completed. Number of equipment phased out, collected, stored project and disposed.	Tender contract. Certificate of disposal	UTE exported 46 ton for their incineration.	Eliminate already detected stockpiles. 125 tons of PCB equipment disposed.	Special training will be provided so as to reduce risks for health and the environment  Final Disposal prices held at same US\$ level
3.3.2	Demonstrative site clean up	Number remediated sites. Tons of treated soil.	Final report evaluation of each site.	Nothing done up today	Gain knowledge and hands on experience on PCB proper site evaluation and intervention.	The projects will cause too high costs International expert will review this activity. Selection by the PSC. Special training will be provided so as to reduce risks for health and the environment  Knowledgeable training providers are assumed to be available locally or regionally
<b>OUTCOME 4: ELABORATION OF A NATIONAL PLAN FOR PCBs MANAGEMENT</b>						
4.1	Countrywide inventory estimation of all types of PCB containing equipment and waste.	National Inventory estimation done. % estimated data	Updated inventory	Preliminary inventory is prepared	Developing a more accurate countrywide PCB inventory	The extrapolation will not represent the true countrywide picture. International expert will review this activity
4.3	Drafting a detailed National Plan for PCB Management	National Plan developed Agreements between stakeholders.	Plan published and approved. MoUs signed	Only individual actions are developed and no countrywide plan exists for PCB management.	Development of a National Plan for PCB Management to fulfil Stockholm Convention.	Time span is too long.  International expert will review this activity.
<b>OUTCOME 5: PROJECT CLOSURE AND DIFFUSION</b>						
5.1	Final workshop and public awareness at the national and regional level.	Number of participants. List of invited sectors	Minute of the workshop. List of participants.	All stakeholders could be reached by the project	Commitment of all involved stakeholders for further compliance with the Stockholm Convention. Continuation of the phase-out and elimination after the project	Higher costs for disposal afterwards  Other funding instruments are required and will achieve the continuation

C). SUSTAINABILITY (INCLUDING FINANCIAL SUSTAINABILITY)

144. The National Plan for PCB Management will be a key issue that will forge and reflect a long term policy for the PCB management, setting timelines and. resources needed for the actions.
145. The sustainability of the actions started during this Project will be supported by putting in place a specific legal framework for PCBs which will be tested and refined during the Project. The agreed phase out time table will ensure the commitment of the private and public PCB holders to achieve the milestones of it after the Project finalization. .By including the enforcement bodies in the activities, the necessary technical and human resource capacity will be available to continue these activities.
146. The sustainability of up-keeping the PCB database will be ensured by integrating the periodic update of the inventory day-to day activities of DINAMA. The periodic of submission of data for other owners, private and public, according to the foreseen legal framework it will be mandatory to declare all transformers and electrical equipment, supported by an analytical certificate. These will be done according to the guidelines produced in this project
147. A strengthened and operative analytical capacity for PCBs will ensure that oil, equipments, waste can be further evaluated after the Project ends, contributing to the successful implementation of the legal framework.
148. The interim storage facility(ies) for the private sector will continue their operation even after project closure on financial terms.
149. The evaluated alternatives for waste treatment as long as the needs for clean up and remediation of contaminated sites, will leave an open door for companies giving service in this areas.

d) REPLICABILITY

150. The successful implementation of the ESM at holder level as well as the activities in the demonstration projects, will be included in the national plan for PCB management implemented in the whole country and can serve as a sustainable example for other countries or regions confronted with the PCB issue.
151. At a regional level the **Coordination Centre for Latin America and the Caribbean for the Basel Convention**, with seat in Montevideo, will collaborate with the regional diffusion of the lessons and experiences gained during this project.
152. The experiences gained from this project, its impact on the policy framework, the capacity building activities in key institutions, the identified options of PCB disposal technologies and the elaborated tools and methodologies addressing environmental problems of PCBs and the results of its practical implementation in the demonstration

projects, will ensure that other countries or regions can easily use it as a tested tool for the sound management of PCB-containing electrical equipment.

153. Particularly the study on alternative national facilities for disposal of cross-contaminated oil (< 2,000 ppm PCB) will help other countries in the region to assess their options as the situation is comparable.

e).      STAKEHOLDER INVOLVEMENT

154. All major stakeholders have been consulted in the project conceptualisation and design phase before and during the PDF-A activities in 2007. They have provided valuable input and feedback. The initial list of these stakeholders is as follows:

- National Directorate for Environment (DINAMA)
- GEF Focal Point: Ministry of Housing, Use of Land and Environment (MVOTMA)
- UTE – Electric Power Utility
- LATU – Technical Laboratory of Uruguay
- Ministry of Foreign Affairs (MRREE)
- Ministry of Livestock, Agriculture and Fisheries (MGAP)
- Ministry of Public Health (MSP)
- Ministry of Economy and Finance – National Customs Directorate (DNA)
- Ministry of Labor and Social Security (MTSS)
- Ministry of Defence – National Coastguard Authority (PNN)
- Ministry of Industry, Energy and Mining (MIEM)
- Ministry of Interior – National Fire Brigade (DNB)
- Ministry of Transportation and Public Works (MTOP)
- Chamber of Industries of Uruguay (CIU)
- University of the Republic (UdelaR)
- Uruguayan Network of Environmental NGOs
- National Non-Governmental Organizations Association
- ANCAP – National Fuels, Alcohol and Cement Administration
- ANP – National Port Authority
- BSE – State Insurance Bank
- Local Governments
- PIT-CNT – Workers Trade Unions Federation

f)      MONITORING AND EVALUATION

155. The project will be monitored and evaluated in accordance with the procedures established by UNDP and GEF. UNDP will have the monitoring and reporting obligation for the project. The NPC will be responsible of providing all relevant technical and financial information for monitoring and evaluation purposes and will elaborate and provide the required monitoring and evaluation documentation. Monitoring and evaluation will be based on measurable performance indicators through verifiable points, which are elaborated in the context of each activity in the logframe matrix.

156. An inception workshop (under activity 1.2.) will be organized to launch the project and relevant government counterparts, co-financing partners, UNDP representatives and identified stakeholders will be invited. During this workshop, stakeholders will also be briefed on the Monitoring and Evaluation measures.
157. A detailed schedule of the project review meetings will be developed by project management, in consultation with project partners and incorporated in the Inception Workshop Report. Such a schedule will include finalized timeframes for the Steering Committee meetings, UNDP's reporting requirements (or relevant advisory and/or coordination mechanisms) and project related Monitoring and Evaluation activities.
158. *Monitoring:* Day-to-day monitoring of implementation progress will be the responsibility of the NPC based on the project's work plan and its indicators. The indicators with their means of verification will be approved at the inception workshop, which will also be the first meeting of the PSC.
159. The CTA will be responsible to monitor the implementation progress on behalf of UNDP. UNDP will conduct the field monitoring and evaluation missions. During these missions policy-level meeting of the parties directly involved in the implementation of the project will be required. The first of such meetings will be held within the first three months of project implementation. It also assists to make all involved parties acquainted with the reporting procedures.
160. *Reporting:* The NPC will prepare a project Inception Report immediately following the Inception Workshop. The workshop report will include a detailed work plan for year one; detailed project budget for the first full year of implementation; detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms.
161. All elements of the project will also be the subject of the evaluation measures of the Implementing Agency (UNDP). This will include the harmonized Project Implementation Review (PIR) and Annual Project Report (APR) and external evaluations. The **mid-term project review** would focus on the lessons learnt from project experience to that date, including lessons about the project design, implementation and overall management. This can be done by national consultants. The final report prior to the end of the project will focus on similar issues but will give strong emphasis to the potential for project impacts beyond the initial objectives. Recommendations for follow-up activities will be included in each of these reports.
162. The NPC will be responsible for the production of the Quarterly Project Reports and Annual reports to UNDP. These reports are a UNDP/GEF requirement and will reflect of the progress of the project.
163. *Evaluation:* The evaluation will be based on the Annual and Quarterly Project Reports, technical reports, workshop reports and reports of the CTA. At least three UNDP field evaluations are foreseen to provide technical inputs, safeguard project adherence to the work plan and the use of funds. The tentative evaluations are included in the work plan. These evaluations will determine progress being made towards the achievement of

outcomes and will identify course correction if needed. The final evaluation will also look at impact and sustainability of results.

164. *Audit:* The project is subject to financial audits as required in accordance with the UNDP/GEF rules and regulations.

#### **4 – FINANCING**

##### FINANCING PLAN, COST EFFECTIVENESS, CO-FINANCING, CO-FINANCIERS

165. Paragraph 2 of Article 13 of the Stockholm Convention foresees that the financial mechanism of the Convention shall provide the agreed full incremental costs of the implementing measures for developing countries and countries with economies in transition. To this end the incremental costs of all activities of the project were assessed. Baseline cost will be paid by the governmental or co-financing sources, while measures, which directly related to the Stockholm Convention, will be financed from the GEF resources.
166. The total project cost is USD 2,098,400 million where USD 999, 550 million is GEF grant (including 45,000 USD expended for PDF-A).

Table - Detailed Budget

Completion of major activities		Project Total	GEF	Co-financing	UNDP Co-financing
<b>Outcome 1: Project set up and monitoring</b>					
1.1	Establishment of the PSC and definition of responsibilities and work plan (permanent staff for the whole project is included in this item.)	124,400	89,000 *	35,400	
1.2	Presentation and consultation of the government strategy in phasing out of PCB (building block of the National Plan for PCB Management), ongoing activities as well as the work plan of the project	11,500	11,500		
1.3	Final definition of the project activities and its management	4,350	2,000	2,350	
1.4	Selection of demonstration projects	28,500	5,750	22,750	
<b>Subtotal</b>		<b>168,750</b>	<b>108,250</b>	<b>60,500</b>	
<b>Outcome 2: Institutional and regulatory strengthening, capacity building and development of an environmentally sound management system for PCBs for the authorities and PCB holders.</b>					
<b>Output 2.1 Capacity building and strengthening of the PCB management in the public sector (authorities) and development of the building blocks for introduction of Sound PCB management among the PCB holders.</b>					
2.1.1	Development of PCB handling guidelines and procedures as well as sampling and analytical capacity for the identification of PCB-containing equipment.	11,950	4,650	7,300	
2.1.2	Development of a centralized database for PCB	62,000	30,500	31,500	
2.1.3	Development of procedures for labelling electrical equipment	34,850	2,150	32,700	
2.1.4	Development of procedures for collecting PCB-containing equipment, and a reporting format for the private sector	10,750	3,900	6,850	
2.1.5	Development of safety measures to prevent PCB releases to the environment from operational equipment and from storage facilities	22,100	4,650	6,450	11,000
2.1.6	Development of a strategic approach to PCB-contaminated sites	20,850	17,150	3,700	
2.1.7	Preparation of guidelines for good maintenance practice and risk reduction practices (human safety measures, cross contamination avoidance)	26,050	11,350	9,700	5,000
2.1.8	Development of safety measures for the 5 to 15 kVA transformers owned by UTE	17,050	11,850	5,200	
<b>Output 2.2: Development of capacities for evaluation, control and disposal of PCB</b>					
2.2.1	Development of analytical capacity	207,000	101,000	106,000	
2.2.2	Evaluation of alternative disposal possibilities for oils above 50 below 2,000 ppm PCB.	109,750	18,500	91,250	
<b>Output 2.3. Adoption of the Sound Environmental Management ESM system for authorities and PCB holders</b>					
2.3.1	Discussions involving government stakeholders, major PCB users and representatives of involved authorities and approval of the proposals	15,300	1,500	13,800	
2.3.2	Amendment of the legislation according to the approved practices to improve legal framework for the PCB management and disposal	4,000		4,000	
<b>Subtotal</b>		<b>541,650</b>	<b>207,200</b>	<b>318,450</b>	<b>16,000</b>
<b>Outcome 3: PCB management with the demonstration projects and practical implementation of the ESM system</b>					
<b>Output 3.1 Updating of the national PCB-containing transformers inventory</b>					
3.1.1	Training on practical implementation of the ESM for personnel involved in PCB handling	49,400	28,300	21,100	
3.1.2	Identification of PCB-containing transformers, PCB waste and sites contaminated with PCBs as well as upgrading of laboratory capacity	262,500	37,000	225,500	
3.1.3	Development of a detailed inventory of PCB-containing equipment and wastes	53,500	5,600	47,900	
3.1.4	Development of a time table for phasing out PCB-containing electrical equipment.	1,000		1,000	
<b>Output 3.2 Interim storage for PCB-containing equipment and wastes</b>					
3.2.1	Identification of possible interim storage location(s)	2,000	1,000	1,000	
3.2.2	Selection of interim storage location(s)	11,000	10,000	1,000	
3.2.3	Upgrading the interim storages owned by UTE	63,800	19,800	44,000	
3.2.4	Development and introduction of environmental monitoring systems at the interim storage areas	5,500		2,000	3,500
<b>Output 3.3: Capacity building for disposal and site clean up by demonstrative projects</b>					
3.3.1	Demonstration of Phase-out, collection, storage and disposal of PCB equipment	500,000	360,000	140,000	
3.3.2	Demonstrative site clean-up	180,000	105,000	75,000	
<b>Subtotal</b>		<b>1,128,700</b>	<b>566,700</b>	<b>558,500</b>	<b>3,500</b>

Completion of major activities		Project Total	GEF	Co-financing	UNDP Co-financing
Outcome 4 : Elaboration of a National Plan for PCB Management					
4.1	Countrywide inventory estimation	2,500	2,500		
4.2	Drafting a detailed National Plan for PCB Management	10,000	2,000	8,000 **	
<b>Subtotal</b>		<b>12,500</b>	<b>4,500</b>	<b>8,000</b>	
Outcome 5: Final workshop and public awareness					
5.1	Final workshop and public awareness at the national and regional level.	9,500	1,500	8,000 **	
<b>Subtotal</b>		<b>9,500</b>	<b>1,500</b>	<b>8,000</b>	
<b>TOTAL 1</b>		<b>1,861,100</b>	<b>888,150</b>	<b>972,950</b>	
Other costs, not directly linked to any activity					
	Project Management	128,800	66,400 ***	62,400	
	Taxes and fees	63,500		63,500	
	PPG	45,000	45,000	5,000	
<b>Subtotal</b>		<b>242,300</b>	<b>111,400</b>	<b>130,900</b>	
<b>TOTAL</b>		<b>2,103,400</b>	<b>999,550</b>	<b>1,084,350</b>	<b>19,500</b>

\* Monitoring and evaluation: USD 35,000 ; Permanent staff (2 consultants): USD 44,000; 1 Communications expert: USD 8,000; Workshops and supplies for them: 2,000

\*\* Contribution of USD 5,000 (in-kind) by The Coordination Centre for Latin America and the Caribbean for the Basel Convention.

\*\*\* Project coordination, secretary, travel, equipment and supplies.

#### a) PROJECT COSTS

Components/ Outcomes	Co-financing	GEF	Total
	(USD)	(USD)	(USD)
Outcome 1: Project set up and monitoring	60,500	108,250	168,750
Outcome 2: Institutional strengthening, capacity building and development of an environmental sound management system for PCB	334,450	207,200	541,650
Outcome 3: PCB management with the demonstration projects and practical implementation of the ESM system	562,000	566,700	1,128,700
Outcome 4: Elaboration of a National Plan for PCB Management	8,000	4,500	12,500
Outcome 5: Final workshop and diffusion	8,000	1,500	9,500
<b>TOTAL</b>	<b>972,950 *</b>	<b>888,150 *</b>	<b>1,861,100 *</b>

\* For this analysis none of the items considered under heading "Other costs, not directly linked to any activity " considered in the Detailed Budget, were taken into account.

#### b) PROJECT MANAGEMENT BUDGET/COST

The following table shows the budget, in cash, associated to project management

Component	Estimated Staff Weeks	GEF (USD)	Other sources (USD)	Project Total (USD)
Locally recruited personnel (administrative support)	52	9,600	-	9,600
Local consultants (Project Coordinator)	312	32,400	-	32,400
Office facilities, equipment, vehicles and communications		10,200	-	10,200
Travel (for technical assistance)		10,900	-	10,900
Miscellaneous		3,300	-	3,300

<b>Total</b>		66,400	-	66,400
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### C) CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS

Component	Estimated Staff Weeks	GEF (USD)	Other sources (USD)	Project Total (USD)
Local Consultants (permanent staff and	240	65,300	13,300	78,600
International Consultants	16	80,000	-	80,000
Contractual services (individual)	36	26,000	-	26,000
Contractual services	-	44,200	90,00	134,215
<b>Total</b>	-	215,500	103,300	318,800

32 % GEF financing

### D) CO-FINANCING SOURCES

167. The government and Uruguayan partners' contribution to the project is **USD 1,079,350** a part from the USD 5,000 in kind contribution to the formulation stage. This total amount will be provided as follows:

- a) **USD 577,000** (in cash and in-kind) will be provided by the owners of PCB waste (at the moment only UTE).
- b) **USD 492,350** (in cash and in-kind) will be mobilized by the Ministry of Housing, Use of Land and Environment, local authorities and the national project team during the implementation of the project from private enterprises in the selected demonstration areas.
- c) **USD 10,000** (in-kind) will be provided by the Coordination Centre for Latin America and the Caribbean for the Basel Convention for the regional diffusion of lesson and experiences learnt during the project.

Budget revisions will not modify the GEF contribution and its format.

168. The expected contribution from UNDP will be **USD 19,500** (in-kind) and will be part of a project of *Capacity Building of the National Emergency System*, which will include the elaboration of guidelines for POPs and hazardous substances management and the capacity building of the national institutions for the management of these substances.

CO-FINANCING SOURCES				
Name of Co-financier (source)	Classification	Type	Amount (USD)	Status
UTE	Beneficiary	In-kind and cash	377,000 (in-kind) 200,000 (cash)	Confirmed
Ministry of Housing, Use of Land and Environment	Executing Agency	In-kind and cash	272,350 (in-kind) 220,000 (cash)	Confirmed
Basel Convention – Coordination Centre for Latin America and the Caribbean	Multilateral Agency	In-kind	10,000	Confirmed
UNDP	GEF Implementing Agency	In-kind	19,500	Confirmed

169. Additional co-financing will be mobilized during the project implementation. To this end,



meetings are planned to inform and increase the interest of donors, foundations, investment banks, companies/corporate, private sector or national banks to promote the proposed activities and investments. In order to link the industry with the investment banks and chambers, associations of the major industries will also be invited to project events. This will create interest and negotiations for increased co-financing.

170. In-kind contribution from local authorities and private enterprises in the selected demonstration areas will be mobilised through roundtable meetings. Based on the availability of these resources, the co-financing part of the budget will be revised and additional activities financed. Budget revisions will not modify the GEF contribution and its format. The project aims to reach additional co-financing on top of the currently available co-financing. The actual co-financing will continuously be monitored throughout the project implementation and will be reported to UNDP.

## Incremental Reasoning

Component/ activity	Baseline (B)	Alternative (A)	Increment
<b>Outcome 1: Project set up and monitoring</b>			
<b>Environmental benefit</b>	<ul style="list-style-type: none"> <li>- PCB priorities were identified in the NIP but no practical actions were implemented.</li> <li>- Poor coordination, planning and commitment between stakeholders due to lack of resources</li> <li>- Delay in the implementation of actions for PCB management contributes to the impacts on health and environment.</li> </ul>	<ul style="list-style-type: none"> <li>- Strengthening of the coordination between stakeholders for the equipment, oil and waste management.</li> <li>- Stakeholders' coordination improves the national application of the Stockholm Convention in Uruguay.</li> </ul>	<ul style="list-style-type: none"> <li>- Development of a national policy for PCB management and an action plan.</li> <li>- Achievement of a consensus between stakeholders.</li> <li>- Agreed measures facilitate the sound management of waste, oil and equipment</li> <li>- Enforcement of law framework</li> </ul>
<b>Cost</b>	USD 0	USD 168,750	USD 108,250 (GEF) USD 60,500 (GoU in kind)
<b>Outcome 2: Institutional strengthening, capacity building and development of an environmental sound management</b>			
<b>Environmental benefit</b>	<ul style="list-style-type: none"> <li>- Little institutional capacity was developed by NIP with GEF support.</li> <li>- Limited capacity for identification, testing and treatment of oils and equipment.</li> <li>- Lack of national capacities to implement the obligations derived from the Stockholm Convention.</li> <li>- No legislation nor guidelines for sound management in place.</li> </ul>	<ul style="list-style-type: none"> <li>- Local authorities are able to implement the ESM system</li> <li>- Enhanced ability of the government to act jointly with the private sector for environmental sound elimination of PCB</li> <li>- Strengthening of the analytical capacity.</li> <li>- Elaboration of guidelines for the sound management of PCB according to international standards.</li> <li>- Identification of national alternatives for PCB treatment.</li> <li>- Strengthening of national capacities to reduce inadequate PCB elimination and releases to the environment.</li> <li>- Development of an inventorying and tracking system.</li> <li>- Assist in the follow up of stockpiles until soundly eliminated and the releases to the environment.</li> </ul>	<ul style="list-style-type: none"> <li>- Adequate institutional capacity for management will be developed through staff training programs at all levels.</li> <li>- Agreed guidelines facilitate the sound management.</li> <li>- Information available regarding national stocks of PCB</li> <li>- Facilitates the national creation of national capacities for PCB-containing oils.</li> <li>- Increase of the number of PCB-experts regionally.</li> <li>- Higher level communication on PCB issues between neighboring countries is possible</li> <li>- Better follow up and report of stocks to the Stockholm Convention's Secretariat.</li> </ul>
<b>Cost</b>	USD 0	USD 541,650	USD 207,200 (GEF) USD 175,000 (GoU cash) USD 143,450 (GoU in kind) USD 16,000 (UNDP in kind)

<b>Outcome 3: PCB management with the demonstration projects and practical implementation of the ESM system</b>			
<b>Environmental benefit</b>	<ul style="list-style-type: none"> <li>- Poor control of PCB equipment, increases the number of cross contaminated equipment.</li> <li>- Scarce evaluation of potentially PCB contaminated sites</li> <li>- Not properly controlled PCB activities have a negative impact to the global environment and human health</li> <li>- Sites not remediated will pose risk of exposure for humans and environment</li> </ul>	<ul style="list-style-type: none"> <li>- Phasing-out and elimination projects will be controlled and restricted to skilled units.</li> <li>- Increased awareness at all levels for the ESM system</li> <li>- Private sector will be included in the disposal activities</li> <li>- Sound site clean up will generate experienced national human resources.</li> <li>- Good practices implemented and personnel trained reduce the risk of release to the environment and inadequate disposal.</li> <li>- Demonstration projects facilitate the elimination of existences, reducing risks of release to the environment.</li> <li>-Local authorities learn from the demonstration projects and have a better understanding of the required measures</li> </ul>	<ul style="list-style-type: none"> <li>- The inventorying and follow up of stocks is facilitated.</li> <li>- Human and environmental exposure locally is reduced due to the adequate equipment management and clean up sites experiences included in the demonstrative projects.</li> <li>- Increased number of properly identified existences to be included in the elimination plan.</li> <li>- Better quality of the information to be reported to the Stockholm Convention's Secretariat.</li> </ul>
<b>Cost</b>	USD 0	USD 1,128,700	USD 566,700 (GEF) USD 245,000 (GoU cash) USD 313,500 (GoU in kind) USD 3,500 (UNDP in kind)
<b>Outcome 4: Elaboration of a National Plan for PCB Management</b>			
<b>Environmental benefit</b>	<ul style="list-style-type: none"> <li>- Poor countrywide estimation for PCB equipment nor a countrywide plan for PCB management.</li> <li>- The SC-NIP action plan for PCB has limited input for the global knowledge on proper PCB management.</li> </ul>	<ul style="list-style-type: none"> <li>- A PCB action plan adapted to national situation and characteristics will optimize disposal activities.</li> <li>-Reduced costs for disposal through well-defined tendering.</li> <li>- The PCB action plan adapted to national reality will avoid and reduce releases to the environment.</li> </ul>	<ul style="list-style-type: none"> <li>- The continuity of the actions started by this project is assured after the project closure by means of an agreed national plan.</li> <li>- A national action plan is put in place to comply with the obligations derived from the Stockholm Convention.</li> </ul>
<b>Cost</b>	USD 0	USD 12,500	USD 4,500 USD 8,000 (GoU in kind)
<b>Outcome 5: Final workshop and diffusion</b>			
<b>Domestic environmental benefit</b>	- No monitoring for GEF is needed without the project.	- The planned actions will render the expected benefits through a regular evaluation and modification of the course of action, if needed.	- Increased involvement of major stakeholders for the successful management of the project. - DINAMA's institutional image as responsible institution for the control and management of the project, is strengthened.
<b>Global environmental benefit</b>	- Does not apply.	- Increased public awareness	Proper use of international funds and fulfillment of the planned activities is assured. - Increment in the public awareness reduces the risk to the environment
<b>Cost</b>	USD 0	USD 9,500	USD 1,500 (GEF) USD 8,000 (GoU in kind)
<b>Total cost *</b>	<b>USD 0</b>	<b>USD 1,861,100 *</b>	<b>USD 888,150 * (GEF)</b> <b>USD 420,000 (GoU in cash)</b> <b>USD 533,450 (GoU in kind)</b> <b>USD 19,500 (UNDP in kind)</b>

\* For this incremental cost analysis costs under "other costs, not directly linked to any activity" (see Detailed Budget) were not taken into account

171. During the incremental cost analysis not only the benefits of the baseline and project activities were considered. In many cases, activities may have detrimental effects on the environment and this was also included in the calculation of the incremental cost. It might put additional pressure on authorities and specially PCB owners and can result in the disposal of PCB-containing equipment in an environmentally unsound manner.
172. The key impact of the alternative project scenario, results form the joint action of the private sector and government bodies. By making owners of electrical equipment interested in the inventory and elimination process, the inventory figure might be higher, but the impact of the activities will have significant global impact. Proper awareness raising will also result in an environmentally conscious behaviour. This will gradually increase the implementation process without putting extra pressure and risks on the environment

#### E) COST EFFECTIVENESS

173. Most of the project resources pays salaries and related costs for office work. The budget is calculated on realistic levels for ensuring timely and quality inputs. For this portion of the project little benchmarking is available, however due to close oversight of DINAMA and UNDP Country Office it can be expected that the activities can be implemented very cost effectively taking into consideration the local cost level.
174. For any infrastructure or disposal subcontract strict competition and tendering requirements will be adhered to. It can hence be expected that good average price levels for these activities will be achieved.
175. From global perspective it can be noted that the project directly destroys sources of POPs and would normally be much more cost-effective for achieving results than a project that deals with preventive or curative measures, when it comes to avoiding environmental or human exposure to POPs

## 5 – INSTITUTIONAL COORDINATION AND SUPPORT

### a) CORE COMMITMENTS AND LINKAGES

176. This Project is a direct consequence of the Uruguayan NIP funded by GEF, in which the main components of the proposed actions were identified and prioritized in close cooperation with the different stakeholders involved in the respective issues.

### b) PROJECT IMPLEMENTATION ARRANGEMENTS

177. This Medium Size Project will be executed through the modality of National Execution (NEX), which implies that a governmental entity is responsible for the Project Execution. This modality contributes to enhancing the technical and managerial skills at the level of the project executing entity and assists in strengthening its general profile in a sense of leadership and promotion. This will improve project sustainability and helps creating the conditions for further replication.
178. UNDP will be the **Implementing Agency (IA)** for this project. UNDP will work closely with NEA and will be responsible for overseeing project budgets and expenditures, recruitment and contracting international consultants, procurement of equipment (when not done by the NEA) and project evaluation as well as and organizing independent audits to ensure the proper use of funds. Financial transactions, auditing and reporting will be carried out in compliance with national regulations and UNDP procedures. UNDP will appoint a Chief Technical Advisor.
179. CTA), who will monitor the implementation progress and will provide technical and organizational back up to the project team.
180. The **National Executing Agency (NEA)** will be responsible for the project execution. It is designated to deliver specific inputs (services, expertise, and procurement of equipment) to the project and produce specific outputs through an agreement between the NEA and UNDP. NEA will be responsible for mentoring the implementation of the activities to be financed by local donors. NEA is accountable to UNDP for the proper use of funds provided to it and for the quality, timeliness and effectiveness of the services it provides and the activities it carries out. The Ministry of Housing, Use of Land and Environment (MVOTMA) by means of its National Directorate for Environment, will be the National Executing Agency (NEA) for this project. NEA will be responsible for the day-to-day project implementation and the timely and verifiable attainment of project objectives.
181. The **National Project Director** will be a high level member of the NEA and will be responsible at the highest level for ensuring that the project Implementation follows national policy and standards. Key tasks will be supervise the project coordination through meetings at regular intervals to receive Project progress reports and provide guidance of policy issues; chair the Steering Committee. He or she will also take the lead in developing linkages with the relevant baseline programmes under the authority of the Ministry of Housing, Use of Land and Environment (MVOTMA) maximizing complementarities.

He or she will also represent the Project at high level national and international meetings and will keep the Minister of Environment updated on the Project advance and challenges as needed.

182. The NEA will establish a project office. NEA in consultation with UNDP will nominate a **National Project Coordinator (NPC)** on a full-time basis, who reports to the Project Steering Committee (PSC), the NEA and the Implementing Agency. The NPC will ensure adherence to the work plan, which will be finalized during the first phase of the project implementation. His/her main responsibilities will include advising on and monitoring of all technical aspects of the project implementation as well as the financial control over the project execution. The NPC will work in close cooperation with the POP's focal point and the CTA. The NPC will be responsible for facilitating UNDP's project monitoring duties, which includes preparing technical and financial reports to UNDP and GEF, organizing meetings and appointments during field evaluations, and confirming the quality of the project's outputs.
183. During the implementation of this project, a **Legal Advisor (LA)**, working on a contractual basis will facilitate the execution of the proposed activities and handle all legal aspects such as procedures for tenders, contracts and agreement preparations.
184. **Task teams** will be established for certain activities. These task teams will consist of national experts contracted for this purpose and representatives of the stakeholders identified above. The NPC will work closely with the task teams to coordinate project activities and make the link between project administration and implementation as seamless as possible.
185. A **Project Steering Committee (PSC)** will be established and will act as the coordinating committee for the execution of this project. The PSC will hold quarterly meetings. This entity will be the decision making body of the project. Someone at the level of General Director or Secretary of State will chair it. Relevant ministries, representatives of the major and minor owners of PCB, representatives from hazardous wastes management companies, and the NGO sector will also be members of the committee. The PSC will decide on the frequency of the meetings and its working procedures. The PSC will hold its regular sessions throughout the implementation, but additional meetings can be held if necessary. The PSC will oversee the project-related work of the NPC and the implementation team. The PSC will review, comment on and approve the work plan. All decisions of the committee, such as respective responsibilities, timelines and the budget will be clearly communicated to those concerned. Activities will be implemented through sub-contracts. Submitted tenders, contracts and MoUs will be reviewed and evaluated by the PSC according to existing UNDP procedures. Any major changes in the project plans or programmes will require approval from the PSC to take effect. PSC members will facilitate the implementation of project activities in their respective organizations, ensure that cooperative activities are implemented in a timely manner and facilitate the integration of project-inspired activities into existing programmes and practices. Representatives of partner and co-funding organizations not represented in the PSC will be invited to attend the meetings as needed.
186. During the PDF-A phase, field visits were launched to assist in the preparation and

development of the MSP. During these missions several consultations were undertaken with the possible stakeholders. These discussions highlighted that successful implementation can only be achieved if governmental entities, public, private and NGOs institutions are equally involved and represented in the development and implementation of the ESM measures.

187. The tentative list of these stakeholders is as follows:

- National Directorate for Environment (DINAMA)
- GEF Focal Point: Ministry of Housing, Use of Land and Environment (MVOTMA)
- UTE – Electric Power Utility
- LATU – Technical Laboratory of Uruguay
- Ministry of Foreign Affairs (MRREE)
- Ministry of Livestock, Agriculture and Fisheries (MGAP)
- Ministry of Public Health (MSP)
- Ministry of Economy and Finance – National Customs Directorate (DNA)
- Ministry of Labor and Social Security (MTSS)
- Ministry of Defence – National Coastguard Authority (PNN)
- Ministry of Industry, Energy and Mining (MIEM)
- Ministry of Interior – National Fire Brigade (DNB)
- Ministry of Transportation and Public Works (MTOP)
- Chamber of Industries of Uruguay (CIU)
- University of the Republic (UdelaR)
- Uruguayan Network of Environmental NGOs
- National Non-Governmental Organizations Association
- ANCAP – National Fuels, Alcohol and Cement Administration
- ANP – National Port Authority
- BSE – State Insurance Bank
- Local Governments
- PIT-CNT – Workers Trade Unions Federation

188. In order to understand the concerns and views of the private sector, the project invites chambers and associations such as the Chamber of Commerce and Industries for the roundtable discussions to design the ESM system. They will also sensitise their members to participate during the implementation to be able to take over the activities beyond the project life.

189. Private sector will also be involved in the project through their assistance in the management of PCBs, such as transportation, packaging, loading and providing expert services such as inventory development or laboratory services for PCBs analysis. Private companies, which have PCB-containing equipment, could also be involved in the project as co-financing sources. The channel for the co-financing process will be agreed upon during the project start-up.

## **6 LIST OF INCLUDED ANNEXES**

Annex I: Tentative Work Plan

Annex II: Total Budget Work Plan

Annex III: Detailed Expertise of the Executing Agency

Annex IV: Summary of the NIP

Annex V: PCB findings as per NIP and latest contacts

Annex VI: Terms of Reference for the Key Staff

## ANNEX I – TENTATIVE WORK PLAN

DURATION OF PROJECT		PROJECT MONTHS																								
Activities		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
<b>1</b>	<b>Project set up and monitoring</b>																									
1.1	Establishment of the Project Steering Committee (PSC) and definition of responsibilities and work plan																									
1.2	Presentation and consultation of the government strategy in phasing out of PCB (building block of the National Plan for PCB Management), ongoing activities as well as the work plan of the project		4																							
1.3	Finalization of the project activities and its management		15																							
1.4	Selection of the demonstration projects				1 5								5													
<b>2</b>	<b>Institutional and regulatory strengthening, capacity building and development of an environmentally sound management system for PCBs for the authorities and PCB holders</b>																									
<b>2.1</b>	<b>Capacity building and strengthening of the PCB management in the public sector (authorities) and development of the building blocks for introduction of Sound PCB management among the PCB holders</b>																									
2.1.1	Development of PCB handling guidelines and procedures as well as sampling and analytical capacity for the identification of PCB-containing equipment																									
2.1.2	Development of a centralized database for PCB																									
2.1.3	Development of procedures for labelling electrical equipment																									
2.1.4	Development of procedures for collecting PCB-containing equipment and a reporting format for the private sector																									
2.1.5	Development of safety measures to prevent PCB releases to the environment from operational equipment from storage facilities as well as scrap operations																									
2.1.6	Development of a strategic approach to PCB-contaminated sites.																									
2.1.7	Preparation of guidelines for good maintenance practice and risk reduction practices (human safety measures, cross contamination avoidance)																									
2.1.8	Development of safety measures for the 5 to 15 kVA transformers owned by UTE																									
<b>2.2</b>	<b>Development of capacities for evaluation, control and disposal of PCB</b>																									
2.2.1	Development of analytical capacity																									
2.2.2	Evaluation of alternative disposal possibilities for oils above 50 and below 2,000 ppm PCB																									
<b>2.3</b>	<b>Adoption of the Sound Environmental Management ESM system for authorities and PCB holders</b>																									
2.3.1	Discussions involving government stakeholders, major PCB users and representatives of involved authorities and approval of the proposals																									



DURATION OF PROJECT																									
Activities		PROJECT MONTHS																							
Completion of major activities		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2.3.2	Amendment of the legislation and guidelines according to the approved practices to improve legal framework for PCB management and disposal																								
<b>3</b>	<b>PCB management with the demonstration projects and practical implementation of the ESM system</b>																								
<b>3.1</b>	<b>Updating of the national PCB – containing transformers inventory</b>																								
3.1.1	Training on practical implementation of the ESM for personnel involved in PCB handling																								
3.1.2	Identification of PCB-containing transformers PCB waste and sites contaminated with PCBs																								
3.1.3	Development of a detailed inventory of PCB-containing equipment and wastes and their appropriate labelling																								
3.1.4	Development of a time table for phasing out PCB-containing electrical equipment.																								
<b>3.2.</b>	<b>Interim storage of PCB-containing equipment and wastes</b>																								
3.2.1	Identification of possible interim storage location(s)																								
3.2.2	Selection of interim storage location(s)																								
3.2.3	Upgrading the interim storages owned by UTE																								
3.2.4	Development and introduction of environmental monitoring system at the interim storage areas																								
<b>3.3</b>	<b>Capacity building for disposal and site clean up by demonstrative projects</b>																								
3.3.1	Demonstration of phase-out, collection, storage and disposal of PCB equipment																								
3.3.2	Demonstrative site clean up																								
<b>4.</b>	<b>Elaboration of a National Plan for PCB Management based on the demonstrative activities</b>																								
4.1	Countrywide inventory estimation of all types of PCB containing equipment and waste																								
4.2	Drafting of a detailed National Plan for PCB Management																								
<b>5.</b>	<b>Final workshop and diffusion</b>																								
5.1	Final workshop and diffusion at the national and regional level.																								
	Monitoring and evaluation by GEF agency																								

## ANNEX II: TOTAL BUDGET WORKPLAN

GEF OUTCOME/ ATLAS ACTIVITY		RESPONSIBLE PARTY/ IMP. AGENCY	FUND ID.	DONOR NAME	ATLAS BUDGETARY ACCOUNT CODE	ATLAS BUDGET DESCRIPTION	AMOUNT YEAR 1 (USD)	AMOUNT YEAR 2 (USD)	TOTAL (USD)
Outcome 1	DINAMA	62000	GEF	71200	International consultants	22,500	17,500	40,000	
				71300	Local consultants	30,000	22,000	52,000	
				72100	Contractual services	16,250	--	16,250	
					<b>Total Outcome 1</b>	<b>68,750</b>	<b>39,500</b>	<b>108,250</b>	
Outcome 2	DINAMA	62000	GEF	71200	International consultants	22,000		22,000	
				30071	DINAMA	71300	Local consultants	4,900	8,400
		62000	GEF	71400	Contractual services (individual)	13,000		13,000	
					72100	Contractual services	44,200		44,200
		30071	UTE	72100	Contractual services	90,000		90,000	
					DINAMA	72200	Equipment	66,700	
		62000	GEF	72200	Equipment	30,300		30,300	
					30071	UTE	5,000		5,000
		62000	GEF	72300	Goods and materials	45,600	10,000	55,600	
					74200	Audiovisual & Print	14,800	6,000	20,800
					72500	Supplies	6,000	2,000	8,000
	<b>Total Outcome 2</b>				<b>347,400</b>	<b>34,800</b>	<b>382,200</b>		
Outcome 3	DINAMA	62000	GEF	71200	International consultants	9,500	6,500	16,000	
				71400	Contractual services (individual)	3,000	10,000	13,000	
		30071	DINAMA	72100	Contractual services	46,000	94,000	140,000	
					GEF	87,000	416,180	503,180	
		30071	UTE	72100	Contractual services	75,000		75,000	
					72300	Goods and materials	20,330	11,000	31,485
		30071	UTE	72300	Goods and materials	15,000	15,000	30,000	
					62000	GEF	72500	Supplies	2,000
			<b>Total Outcome 3</b>	<b>182,830</b>	<b>628,870</b>	<b>811,700</b>			
Outcome 4	DINAMA	62000	GEF	71200	International consultants		2,000	2,000	
				72100	Contractual services		2,500	2,500	
					<b>Total Outcome 4</b>		<b>4,500</b>	<b>4,500</b>	
Outcome 5	DINAMA	62000	GEF	72100	Contractual services		1,500	1,500	
					<b>Total Outcome 5</b>		<b>1,500</b>	<b>1,500</b>	
Others (Project Management)	DINAMA	62000	GEF	71300	Local consultants	16,200	16,200	32,400	
				71400	Contractual services (individual)	4,800	4,800	9,600	
				71600	Travel	5,450	5,450	10,900	
				72400	Audiovisual and communication equipment	1,600		1,600	
				72500	Supplies	2,000	1,300	3,300	
				72800	Informatics equipment	7,800	800	8,600	
					<b>Total Project Management</b>	<b>37,850</b>	<b>28,550</b>	<b>66,400</b>	
<b>TOTAL</b>						<b>636,830</b>	<b>737,720</b>	<b>1,374,550 *</b>	

\* This Budget workplan does not include PPG (see Detailed Budget)

### ANNEX III: DETAILED EXPERTISE OF THE EXECUTING AGENCY

190. The National Administration through the Ministry of Housing, Use of the Land and the Environment, (MVOTMA) is exclusively responsible for the coordination of integrated environmental management by the State and public entities in general. The MVOTMA was created with Law No 16112 on May 30, 1990 and it carries forth its environmental purposes through the National Directorate for the Environment (DINAMA) as its specialized executing branch.
191. DINAMA's **mission** is to achieve an adequate environmental protection, promoting sustainable development by generating and applying instruments oriented to the better living-quality of the population, the preservation and environmentally rational use of ecosystems, and by a coordinated management with State entities and the articulation with the social actors.
192. Its **vision** is DINAMA positioned as national reference in environmental affairs, promoting strategies for an integrated management of the environmental protection, prevention, evaluation and control in the context of participative policies, aiming at the international recognition of Uruguay for its commitment and fulfilment of the global environmental agreements and conventions, complying with them in an efficient and resource-effective fashion by providing adequate resources and infrastructure.
193. Uruguayan environmental laws have developed particularly over the last fifteen years, providing the basis for national environmental policy. Within these laws, the main one is the General Law for Environmental Protection, or LGPA, (Law No.17283, November 28, 2000) that determines that promoting a sustainable environmental development model is a basic duty of the State and also of public entities in general. The **commitments** assigned by law to DIMAMA are:
  - a) To formulate, execute, supervise and evaluate the plans for the measurement and evaluation the **quality of the environmental resources**: water, air and ecosystems including natural protected areas and the coast line.
  - b) To formulate, execute, supervise and evaluate the plans for the **prevention of environmental impact** derived from human activities or projects, including the promotion of environmental awareness, giving priority to the planning and execution of educational, training, information and diffusion activities for the adoption of behaviours consistent with environmental protection and sustainable development (Art. 11 of LGPA)
  - c) To formulate, execute, supervise and evaluate the plans for the prevention of **control of public and private activities** that might affect the quality of environmental resources, the development of remediation that might be approved (Art. 7 of LGPA)
  - d) To formulate, and **coordinate actions** with national state organisms and local authorities for the environmental protection supporting the local authorities and public entities; make agreements with public and private persons, foreign or national, for the execution of their commitments
  - e) To establish and keep relation with **international organizations** in its field of action, to assure that conventions and other promised actions regarding environmental affairs, take place.
194. Taking the legal framework into consideration DINAMA's **matters of competence** are:
  - a) Water quality (Art. 457 of Law 16.170 of 28th. of December of 1990)
  - b) Air quality (Art. of 17 of LGPA) and Climate Change (Art. 19 of LGPA)
  - c) Chemical substances (including ozone depleting chemicals, Art. 18 of LGPA)
  - d) Waste (Art. 20 and 21 of LGPA), including hazardous wastes (Decree 499/992)
  - e) From the aforementioned comes out that soil quality protection is implicitly included.
  - f) Biological diversity and biosafety (Art. 22 and 23 of LGPA)
  - g) Cost Line (Art. 457 of Law 16.170)

- h) All those environmental matters, even the sectorial ones, not legally assigned to other State entity (Art. 8 of LGPA).
195. Being responsible for the formulation, execution and supervision of the national plans and policies for the environmental protection, DINAMA develops the following main **expertise areas**:
- a. Environmental legal framework development
  - b. Environmental planning
  - c. International affairs
  - d. Environmental Quality
  - e. Environmental Impact Assessment
  - f. Environmental Control
  - g. Protected Areas
  - h. Laboratory (sampling and analysis)
  - i. Relation and communication with the society
196. DINAMA has successfully implemented many **projects with the assistance of International Organizations** developing a fruitful co-operation like the ones with: GEF, GTZ, JICA, IADB, UNDP and UNEP. The main topics of these co-operations were the development of national and local, environmental action programmes, monitoring, laboratory analyses and data processing, which include: the National Implementation Plan for the Stockholm Convention, Climate Change Program, Biosafety, Biosediversity Framework Development Program and Protected Areas Program.
197. Moreover, DINAMA is focal point for the Rotterdam Convention, Stockholm Convention and the Basel Convention and is also the seat for the Coordination Centre for Latin America and the Caribbean for the latter.
198. Furthermore, Uruguay has the necessary legal basis for the environmental management of chemicals and for the approval of the implementation of specific regulations. Article 20 of the LGPA marks the importance that national legislation assigns to the suitable management of chemicals, especially those considered toxic or dangerous. The MVOTMA is responsible for determining the applicable conditions for protecting the environment, during all stages of their use and management. Furthermore, all other organizations within the sector, in coordination with the MVOTMA must incorporate in their regulations rules that ensure that the environment is protected against the adverse effects derived from the normal use, accidents or wastes that may be generated by or derive from chemical substances. In a similar manner, MVOTMA can develop the provisions and apply the necessary measures to regulate the generation, collection, transport, trading, treatment and final waste disposal. Within this framework, by means of Law No. 17732 (December 31, 2003), Uruguay approved the Stockholm Convention on Persistent Organic Pollutants and its annexes. Uruguay is then committed to comply with the obligations set forth in the Convention using the mechanisms determined by it. Uruguay was the seat for the First Conference of the Parties to the Stockholm Convention, in Punta del Este, in May 2005.
199. Finally, Decree 375/006 declares of *national interest* the implementation and execution of the National Implementation Plan (NIP) and sets DINAMA as focal point and national coordination centre for the implementation of the Stockholm Convention and its NIP. Thus it commits the organisms of the Executive Power and other state and private entities to implement it.

## ANNEX IV: SUMMARY OF THE NIP

200. On December 31, 2003, Uruguay ratified the Stockholm Convention through Law N° 17.732. The Convention came into force on May 17, 2004 and it is a legally binding international instrument for the application of measures directed to the prevention of health and environmental hazards caused by Persistent Organic Pollutants (POPs). At the time of publication of this document, 151 governments have signed the Convention and 124 countries are Parties to it.
201. The NIP Project was executed in a period of two and a half years. Over this period, different studies and activities were conducted for the elaboration of the Plan and, in parallel, implementation steps were taken to consolidate and ensure the continuity of the national strengthening process in POP management. A large number of both private and public organizations participated and contributed their knowledge and viewpoints, helping consolidate inter-institutional, inter-sectorial and interdisciplinary approaches needed to facilitate coordination and integration processes for activities to be carried out by State agencies, the private sector and the civil society. In addition, a series of workshops were held; their objective was to disseminate the execution of this Project and generate opportunities for consultation with different public and private organizations.
202. Taking the different thematic areas of the Convention into account, the Project was organized around the following six programmes: Management of Chemical Substances, Environmentally Sound Management of Pesticides, Unintentional Emissions, Prevention and Management of Contaminated Sites, Elimination of PCB (polychlorinated biphenyls) stockpiles, and Sensitization, Training and participation of citizens.
203. In order to conduct basic studies, existing national background information and data on the thematic areas were used, while a compilation and information updating methodology—specially designed to fit each programme - was being developed and applied. Within this framework the inventory on Dioxins and Furans was updated, a diagnosis on the situation of managing transformers and other electrical equipment potentially PCB-contaminated, the first inventory of potentially POP-contaminated sites and other priority substances was developed, obsolete pesticide stockpiles were inventoried, and institutional capacity was assessed, including the analytical capacity relative to POP monitoring and evaluation in environmental matrices.
204. Using the life- cycle approach, different aspects relative to the management of POPs and other substances were studied. Basic gaps were identified in terms of classification and labeling of hazardous substances and the definition of responsibilities of those in charge of commercial activities. A need was detected for an in-depth contribute information for management-related decision making. Likewise, it is necessary to conduct research and promote environmentally sound production as well as management plans for waste generated in the productive sector, for example, disposable pesticide containers.
205. The Project took stock of **obsolete pesticides** totaling 20 tons, mostly located in public institutions (among them, 8 tons of gamma-HCH and 400 liters of DDT), though there may be other stockpiles not duly declared. Therefore, it is necessary to promote measures and specific regulations to prevent the generation of new stock given the deficiencies in the quality control of raw materials and mistakes in production planning by pesticide importers or manufacturers.
206. The **unintentional emissions** in the country were estimated on the basis of the Standardized Toolkit prepared by UNEP-Chemicals. The concern and knowledge on these pollutants is at an inception stage in our country, though the society is quite sensitive given the undertakings identified as potential sources of dioxin and furan emissions. In order to place the issue in the right context, information is required in terms of pollutant levels in emissions of the industrial sector, in environmental matrices and food, to which purpose the country does not have installed capacity at present. Regarding the reduction of emissions, a series of measures could be adopted without incurring into excessive costs; they could be implemented before the best technologies become available (the latter would undoubtedly involve considerable costs for the productive sector). The priority is to improve industrial processes by applying good practices and direct

efforts to a sound management of solid waste in general (this has been identified as the number one environmental priority in our country).

207. Throughout the Project development process, 353 potentially **contaminated sites** were identified; they include a significant number of areas potentially contaminated by POPs. After the identification of contaminated sites, an appropriate framework must be developed to ensure an environmentally sound management. This involves the formulation of specific regulations and institutional capacity study of the specific technical and regulatory aspects related to storage of hazardous substances, and to reinforce measures governing substance-related trans-border operations. The need to create a Hazardous Substances List and improve information management relative to operations with such substances, were also identified. Uruguay is already in the process of designing a National Information System on Chemical Substances, with the support of UNDP as implementing partner, through a GEF funded project. A list integrated by 167 substances defined as priority substances has been generated; it includes the 12 POPs and other high-relevance substances both at the national and international levels. A 63% of these substances are pesticides used in agriculture, animal husbandry, households and industry; the importance of studying this set of substances in particular was also stressed.
208. In terms of **POP pesticides**, the largest inflows into Uruguay were registered between 1978 and 1983. This information is limited as it is currently impossible to access data prior to 1969 and this only refers to pesticides used in agriculture. Toxaphene and hexachlorobenzene were never registered for agricultural use. In 2005 a decree was passed banning the introduction, production and use of POP pesticides in any form or under any scheme in Uruguay, and this became the first regulation to cover the whole life cycle of substances. Accordingly, Uruguay does not present exemptions to Article 4 of the Stockholm Convention. Nevertheless, promotion of an adequate management of pesticides is identified as a priority. To this end, it becomes essential to adapt and develop regulations that integrate environmental and human health protection components, as well as foster sensitization and training of all actors involved in the life-cycle stages, particularly in the case of pesticide users. It is necessary to strengthen and develop integrated programmes to monitor the presence of pesticides in the environment, in food and in the population (especially in the case of workers), to detect critical situations and building (including among others, the creation of infrastructure, training of government technical experts and analytical capacity building). In addition, it is necessary to promote research and development of management alternatives that respond to the national socio-economic context. In order to avoid inappropriate use of the sites, it is essential to focus on the sensibilization and awareness raising of key sectors. The promotion of an adequate waste management --mainly in the case of industry generated waste-- and the implementation of better environmental practices, have been identified as crucial to prevent the generation of new contaminated sites.
209. In terms of **PCB-polluted equipment**, it must be pointed out that the national power utility that generates, transmits and distributes electricity and is owner of 95% of transformers being used in the country, includes a dielectric oil management system which allows for the identification and adequate handling of PCB stocks. However, the possibilities for cross-contamination during maintenance operations, the lack of national infrastructure to treat and eliminate stockpiles, plus the existing difficulties to inventory the total PCB stocks (specially in terms of other equipment containing dielectric oil) are the main weaknesses identified in compliance with this aspect of the Convention. Therefore, this is how the process to formulate the capacity building project on environmentally sound PCB management in Uruguay was started, financed by GEF funds and with the support of UNDP as implementing partner.
210. In terms of **sensibilization, awareness raising and training**, the country has engaged in sustained environmental education efforts by means of different projects and activities carried out by the State as well as by civil society organizations. The non-governmental organizations (NGOs) operating in Uruguay, can be grouped into two main categories according to their working and thematic areas: those involved in the social and/or economic areas that incorporate the environmental issues indirectly, and those whose core activity area is specifically environmental. In the course of the Project, an initial communications, sensitization and training strategy phase was started with the help of seminars where information needs were identified vis-à-vis POPs from the perspective of the formal education system and that of civil society organizations. In reply to these needs the proposal is to sensitize, inform and build on the social capacity, in

particular the most vulnerable sectors, on the risks associated to the use of chemical substances and products, leading to their responsible use and reduction of related risks. These activities must be integrated to the training components identified in other areas of the Plan. Likewise, a proposal is made to devise programmes and strengthen civil society organizations to generate a framework that favors the participation of citizens. Access to information on POP-related scientific work and documents generated in the country is rather complex given that this information is not systematized. Therefore, to design and implement a system that incorporates and updates the academic information and research generated at the national level on chemical pollutants, becomes a priority, in addition to providing research lines relative to all the gaps detected by the Project. In the framework of action lines identified as priorities, programmes were elaborated as part of the Plan. The Project team estimated the necessary resources by budgeting the activities that are included in the programmes (short-term activities: for the period covering 2006-2010; and medium-term activities: 2011-2015), also identifying the type of funding source. The activities incorporated in the programmes can be grouped as follows: Institutional capacity building, Development of sectorial regulations identified in each of the programmes. Development of research lines. Sensitization, training and participation of citizens. Risk prevention relative to workers' health. Food security. Improvement of waste management to minimize unintentional emissions and the generation of obsolete pesticide stockpiles and contaminated sites. Specific action included in programmes such as Improvement of Chemical Substances Management, Environmentally Sound Pesticide Management and Elimination of PCB Stockpiles and Prevention, and Management of Contaminated Sites that do not integrate the previously described areas. Improved environmental performance through the implementation of better environmental practices and better technologies available. Monitoring of industrial sector and environmental monitoring plan for unintentional emissions and pesticides.

211. The cost estimated for the implementation of these activities in the first ten years is of around **58 million US dollars**, 66% of which is focused on the first five years.
212. It must be highlighted that the estimation of this budget does not include all the activities that involve field intervention, as each of them requires a special analysis and the information currently available is not enough in terms of scope of actions and the corresponding budget. For example, actions involving modification or restructuring at the level of productive sectors, or complete treatment of all stocks of PCB-polluted waste or processes to remedy contaminated sites, are all included in this category. The Plan contained in this document represents Uruguay's commitment vis-à-vis the international chemicals Agenda, within the framework of sustainable development policies of the country. It represents a strategic planning tool to implement actions relative to persistent pollutants by integrating national objectives and obligations arising from the Convention. It is a public document that will provide transparency to all activities that are planned and carried out. Likewise, it conceives the methodology and mechanism to follow-up and reformulate the Plan, adapt it to changes and to evaluate the efficacy of measures proposed.

## **ANNEX V : PCB FINDINGS**

213. This Annex includes findings from the NIP and new information gathered during the formulation process.

### **TRANSFORMERS**

214. UTE as public utility with the monopoly for power generation, transmission and distribution at country level holds about 40.000 transformers which represents about 95% of the equipment installed.

215. The remaining 5% comprises around 1.900 pieces spread all over the country in a variety of public and private companies covering a wide range of activities. Unlike UTE's equipment, these lack on management system for contaminated equipment.

### **UTE**

216. The remaining 5% comprises around 1.900 pieces spread all over the country in a variety of public and private companies covering a wide range of activities. Unlike UTE's equipment, these lack on management system for contaminated equipment.

217. Power generation is achieved in thermal and hydraulic power generation facilities at 10.000V. The energy is transported long distances by means of high tension lines between 500 kV and 60 kV. Finally successive voltage reductions to make it available at home, shops and the industry. In the case of some industries, shopping malls and other big surfaces, the voltage reduction must be done by the owners leading to the installation of private owned stations.

218. In 1994 UTE started working in the PCB issue and as a result of the work done, it has a management system in place. This is based on internal standards that assure control and procedure adherence, it consists of the following stages:

1. Data gathering,
2. Classification,
3. Management

219. Depending on the PCB concentration, the possible actions are:

- a) Interim storage at a specially designed storage,
- b) Dilution and use as alternative fuel,
- c) Export,
- d) Reclassification of the transformers.

220. 200 out the 40.000 transformers property of UTE belong to generation and transmission, the remaining belong to the medium and low voltage distribution. In the distribution sector it is estimated that some 10,000 devices are brand-new and were never maintained, thus they can be excluded from being PCB-contaminated. Additionally 4.000 undergone maintenance and correspondingly tested. There are no detailed estimations on the quantity of cross-contaminations with the 26,000 devices.

221. As a result of its environmental management up to now (2007), the following equipment have sampled and PCB containing transformers have been identified: 100% of the existing in thermal generation, 66% in hydraulic generation, 100% in transmission and 15% in distribution (including 100% of the medium voltage).

222. For safety and environmental reasons and for the prevention of cross-contamination, *all* transformers and other equipment undergoing maintenance or phased out are being tested since 2003 (screening +



chromatographic verification) *in situ* prior to any maintenance work at UTE's General Workshops and prior to their release from the workshops. The data collected helps to track the equipment but is far from being an inventory. Up to year 2007, 4.000 pieces of equipment have undergone maintenance, 150 pieces were identified as above 50 ppm PCB. These generated a set of criteria (year, origin and brand) for further identification of potentially PCB-containing equipment and three classes were established high, medium and low contamination probability. This set of criteria was applied to the whole of the distribution transformers and 946 were identified as potentially PCB containing (high 273, medium 276 and low 367). Up to now (2007) only 174 pieces corresponding to high probability, were analysed. Out of this 52 were above 500 ppm and 36 between 50 and 500 ppm. The number of cross contaminated equipment is therefore not considered and is remains unknown.

223. As a result of the management activities done, 22 tons of equipment were identified and exported in 1998 for disposal, these included 100% of thermal generation, some of the equipment from transmission identified at that moment and contaminated wastes. The final destination of these was Afetredi – France and costed about USD5/kg.

224. The following were disposed in this exportation:

Quantity	Equipment	Details	Total Weight (Ton)
2	Transformers	Italrafo	6,54
8	Transformers	Westinghouse	4,63
70	Capacitors	-	4,66
-	Liquid PCB	-	5,76
-	Solid Waste	-	0,14
<b>Total</b>			<b>21,73</b>

225. An other export was expected to be done in 2002 but it was postponed until 2006 due to budgetary problems. In this 46 tons were exported, which included 33% of hydraulic generation, the remaining equipment from transmission and a not specified quantity of equipment from distribution (medium voltage). They were first dismantled by AGR in Spain and further shipped to ARKEMA (France) for its final disposal.

226. The following were disposed in this second exportation:

Quantity	Equipment	Details	Total Weight (Ton)
1	Transformer (empty)	General Electric	4,25
1	Transformer (empty)	General Electric	4,245
1	Transformer (empty)	General Electric	4,22
1	Transformer (empty)	General Electric	4,20
1	Transformer (empty)	No data	0,585
1	Transformer (full)	No data	1,99
3	Transformer (full)	Westinghouse	1,65
4	Transformer (full)	Westinghouse	2,18
1	Transformer (full)	No data	0,545
	Liquid PCB	No data	12,13
	Capacitors	No data	10,335
<b>Total</b>			<b>46,33</b>

227. According to UTE, similar amount is expected to be disposed subjected to resources availability.

228. To summarize, 68 tons were disposed which consist of 100% of thermal generation, 33 % of hydraulic generation, 100% of transmission, an unknown part of the medium voltage distribution and some capacitors.

229. Additionally, oil between 50 and 500 ppm is diluted with PCB-free oil under 50 ppm PCB and is then burnt in the boiler of the thermal generation facility (*Central Batlle*), according to US-EPA recommendations. This practise can be assumed to give rise to PCB releases during handling or combustion.

## Dechlorination Experience in Salto Grande hydro power generation

230. In year 2004 four transformers were dechlorinated by the Argentinean company KIOSHI S.A. using a technology developed by the company based on the Würtz reaction between alkaline metals and chlorinated compounds, rendering aliphatic structures without chlorine. The required equipment was part of the service hired to the company and was brought specifically for that purpose. Such technology and equipment is not available in the country. The following table shows the details of the treated equipment:

Equipment	Oil volume (l)	ppm PCB
Alstho 800 kVA 35/04 kV	1.750	56
Alstho 800 kVA 35/04 kV	1.750	58
Alstho 800 kVA 35/04 kV	1.750	50
Alstho 800 kVA 35/04 kV	1.750	95

## Others than UTE

231. During the NIP information was gathered regarding equipment owned by others than UTE, that includes the public and private sector. Out of 170 consulted companies, 139 declared to have electrical equipment, were then sent a formulary and only 77 answered. As a result of the information gathered, about 90% of the companies own less than 10 transformers. Taking into consideration that most of the big companies were covered, it is most probably that no company with more than 10 transformers are left out. The average quantity of transformers per site is about 2.6.
232. Taking the above mentioned into account the following estimations were done for transformers belonging to others than UTE:

ESTIMATION FOR TRANSFORMERS OWNED BY OTHERS THAN UTE	
Number of Transformer	1.898
Average dry weight of equipment (scrap) (kg)	2.190
Average volume of dielectric oil in the equipment (l)	973
Average total mass of the equipment (kg)	3.110
Weight of total scrap (ton)	4.150
Total volume of oil (m <sup>3</sup> )	1.850

Note: In order to estimate the volume an average density of 1 g/ml was considered, resulting of the average between mineral oil density (c.a. 0,85 g/ml) and PCB oil a density of (1,2 – 1,5 g/ml).

233. To identify PCB containing equipment the owners were asked if analysis were performed. However from the results it is not clear what do the companies base the answer “0 ppm” on. The results are:

Test of PCB in extra UTE sector		
PCBs content	Frecuency	%
Declares 0 ppm	25	6,3%
0 - 50 ppm	32	8,1%
50 - 500 ppm	0	0,0%
Above 500 ppm	1	0,3%
Not tested	336	85,3%
<b>Total</b>	<b>394</b>	<b>100,0%</b>

234. Provided the low number equipment which undergone PCB tests further criteria (origin and fabrication year) were considered in order to use an other approach to get an estimation of equipment. An estimation of

the share per brand and year was obtained, about 50% of the market is of national origin. The following table shows these results:

ORIGIN OF THE TRANSFORMERS	
Number of transformers	%
Uruguay	41
Brazil	13
Italy	9
Argentina	5
Germany	3
Denmark	3
France	3
South Africa	3
England	2
Switzerland	2
Others	3
No data	13

Note: It is probable that some trades names appear more than once, e.g. written in different ways, besides some of them, are composed names, in which some of the names were used alternatively.

235. It is particularly important to cover equipment older than 20 years, were constructed in times when PCB regulations around the world were almost inexistent and because they are close to being phased out so they will require an adequate handling and disposal. The answers to this question are presented in the following table, the average age of the operating equipment is about 15 years old.

CONSTRUCTION DATE	
Period	%
No data	12.2
2000-2009	8.1
1990-1999	31.0
1980-1989	21.1
1970-1979	10.9
1960-1969	11.4
1950-1959	3.8
1940-1949	1.5
1930-1939	0

Note: approximately 3 out of 4, did not complete the information referring the year of installation.

236. Additionally out of the 394 identified equipment, 15% is not in service (either phased out or stored as reserve), 76 % is in service and the remaining stays unknown.

237. An estimation was done taking this into consideration and the following:

1. Production of PCB was prohibited in 1979 in USA and in 1985 in Europe
2. Low probability of the PCB use in equipment produced in Uruguay due to its expensiveness, and due to the at-the-time not so stringent fire protection legal framework.

3. All equipment produced abroad (not an Uruguayan brand) before 1985 without information regarding its origin was considered as potentially contaminated.

<b>IDENTIFIED POTENTIALLY CONTAMINATED EQUIPMENT, SCRAP AND OIL</b>	
Number of foreign equipment fabricated before 1985:	117
% out of identified equipment	30 %
Average dry weight of equipments (kg):	2475
Average volume of dielectric oil in the equipment (l)	834
Average total mass of the equipment (kg)	3292
<b>ESTIMATION OF POTENTIALLY PCB CONTAINING SCRAP , EQUIPMENT AND OIL</b>	
Estimation of number of foreign equipment produce before 1985:	564
Estimation of potentially contaminated scrap	1395
Oil volume of potentially contaminated oil (m <sup>3</sup> ):	470
<b>Estimation of the potentially contaminated total mass (Ton):</b>	<b>1856</b>

## Condensators

238. Owing to their extended use and not limited to just industries or big surfaces, gathering information related to condensers is much more complex than that for transformers. Additionally the information provided in the capacitor's plate is less and is normally not enough to identify whether they contain PCBs or not. Furthermore, in many cases the producers no longer exist.
239. Considering the frequent use of PCB in this equipment it is much more probable that those condensers produced before 1985 contain pure PCB. Additionally as they can not undergo maintenance they are frequently disposed of in an unsound way.
240. From the information gathered by UTE for transformers and capacitors 65 tons of capacitors were identified, out of them 15 tons were exported for disposal as already mentioned in Transformers. According to UTE's representatives there are still some capacitors which are identified, in some cases operative and awaiting to be substituted and disposed.
241. Using UTE's clients information there is an initial estimate about 715 substations but it is probably that this is an underestimate. During this information gathering only 77 companies were contacted, the results are presented in the following table:

<b>CAPACITORS</b>	
Total of contacted companies:	77
Total oil capacitors found :	150
Total of Companies with oil capacitors	12
Average quantity of capacitors per company	1,9

242. Many of the companies that answered had dry insulated capacitors due to their price. The following table shows the results of this questions:

<b>ESTIMATION OF :</b>	
Total mass of capacitors (kg)	3832
Total volume of oil (l):	766
Average volume of equipment (l)	8,4
Average weight of equipment (kg)	42

Note: A 15% to 20% of the equipment weight is considered to be dielectric oil

243. At least 24 capacitors that contained PCB were identified by their owners, containing 541 kg and 108 l of PCB. In the rest of the cases the presence of PCB was neither discarded nor a name or trade name of the oils or insulation.

244. As showed in the next table, unlike transformers most of the capacitors were not produced in the country.

ORIGIN OF CAPACITORS	
	%
Brazil	49
Germany	15
France	7
Uruguay	7
England	5
Japan	4
Argentina	3
Italy	3
Spain	2
Belgium	1
United States	1
No data	3

245. Taking into account the years in which they were produced, results:

Period	Frecuency	%	Accumulated
1960 - 1969	17	11%	11 %
1970 - 1979	5	3,3%	14 %
1980 - 1989	27	18 %	33 %
1990 - 1999	57	38 %	71 %
2000 - 2009	0	0 %	71 %
No data	44	29 %	100 %
	150	100%	

246. Following the same criteria used for transformers regarding the probability of PCB content, the most probably PCB containing equipment is presented in the following table:

PRIORITY EQUIPMENT	
Total of foreign equipment produced before 1985:	45
% out identified equipment:	30
Average volume of equipment (l):	14
Average weight of equipment (kg):	69

247. These results are limited to the equipment considered and can not be used for countrywide extrapolation.

248. Even if capacitors are smaller devices compared to transformers, the huge number of them, their extended use and the fact that they contain pure PCB makes them a priority issue.

## ANNEX VI :TERMS OF REFERENCE FOR KEY STAFF

### Development of the National Capacities for the Environmentally Sound Management of PCBs in Uruguay, a priority identified during the formulation of Uruguay's NIP

#### TERMS OF REFERENCE FOR NATIONAL PROJECT COORDINATOR (1 expert)

**Position:** National Project Coordinator  
**Dedication:** 8 hrs daily  
**Contract period:** 24 months

#### **Background:**

These terms of reference will define the duties and responsibilities of the National Project Coordinator (NPC).

#### **Duties and Responsibilities:**

*The National Experts will assist DINAMA in the implementation and coordination of the project:*

#### **Specific duties will include**

1. Assist in the management and direction of the Project in coordination with the national consultants.
2. Support the Project Steering Committee (PSC) and other institutions involved or having an interest in the project
3. Administer the Project.
4. Plan, coordinate and attend the activities implementation.
5. Control the budget of the Project according to the established norms of UNDP, GEF, etc.
6. Participate in the selection of the required personnel and experts.
7. Organize and execute the activities relatives of meetings and training activities.
8. Coordinate the contracting of entities and services required for the implementation of the demonstration projects (training, dismantling and collection as well as final disposal of PCB equipment, etc.) and monitor their performance.
9. Elaborate the supervision of technical and financial reports of project advance.
10. Elaborate the technical reports relative to the activities of the Project for UNEP, MVOTMA, and GEF.
11. Verifying the existing data on PCB usage and stockpiling
12. Cooperating in the rounding-up of the regulations
13. Supporting UTE and DINAMA in the update and implementation of the Monitoring Plan for the transformers of the distribution network and in designing the plan for the elimination of other PCB-contaminated equipments.
14. Assist DINAMA in others activities included in the Project, as needed.

#### **Qualifications and Requirements:**

- Graduate degree in: Chemical Engineering or Electrical Engineering or Civil Engineering
- Minimum of 3 years experience in the design and management of projects supported by international cooperation and in activities that involve the participation and negotiation of many stakeholders and institutions.
- Experience in management of projects above USD 500,000
- Knowledge of the Uruguayan state management and administration
- Environmental formation
- Specific training in solid waste and contaminated sites management
- Knowledge of the Stockholm and Basel Conventions, preferentially in PCB.
- Good command of the spoken and written English.

# **Development of the National Capacities for the Environmentally Sound Management of PCBs in Uruguay, a priority identified during the formulation of Uruguay's NIP**

## **TERMS OF REFERENCE FOR NATIONAL PCB EXPERT—1 (1 expert)**

**Position:** National Project Consultants  
**Dedication:** 8 hrs daily  
**Contract period:** 24 months

### **Background:**

These terms of reference will define the duties and responsibilities of the National Experts.

### **Duties and Responsibilities:**

*The National Expert will assist UTE and DINAMA in the implementation of the Project.*

### **Specific duties will include**

1. Assist in the rounding-up of the PCB regulations, from the technical point of view
2. Update the legal framework for PCB management and disposal according to the approved practise.
3. Participate in the selection of the required personnel and experts.
4. Develop a process for identifying outstanding industrial PCB containing transformers.
5. Attend in the monitoring of electrical equipment in UTE.
6. Coordinate the activities for PCBs inventory and update and expand the developed database to include the new information gathered.
7. Implement traceability system.
8. Develop of a time table for phasing out PCB-containing electrical equipment.
9. Survey the capacities of the owners of transformers and the maintenance firms to adapt to the provisions of the new regulations.
10. Elaborate and supervise the operation and maintenance guidelines.
11. Support DINAMA and UTE to identify measures leading to minimise the risks of contamination by PCB derived from the use of transformers with PCB oils or contaminated with them.
12. Cooperate in the elaboration of the final report.

### **Qualifications and Requirements:**

- Graduate degree in: Chemical Engineering or Electrical Engineering.
- Environmental formation, specially in persistent organic pollutants, in particular PCB.
- Knowledge of the Stockholm and Basel Conventions.
- Good command of the spoken and written English.

**Development of the National Capacities for the Environmentally Sound  
Management of PCBs in Uruguay, a priority identified during the formulation of  
Uruguay's NIP**

**TERMS OF REFERENCE FOR NATIONAL PCB EXPERT—2  
(1 expert)**

**Position:** National Project Consultants  
**Dedication:** 8 hrs daily  
**Contract period:** 24 months

**Background:**

These terms of reference will define the duties and responsibilities of the National Expert.

**Duties and Responsibilities:**

*The National Expert will assist UTE and DINAMA in the implementation of the Project.*

**Specific duties will include**

1. Assist in the rounding-up of the PCB regulations, from the technical point of view
2. Evaluation of alternative disposal possibilities for contaminated PCB oils.
3. Participate in the selection of the required personnel and experts
4. Supervise transitory storage guidelines.
5. Identification of possible interim storage location.
6. Coordinate the activities of identification, disposal and contaminated site clean up.
7. Supervise occupational health normative.
8. Update the legal framework for PCB management and disposal according to the approved practise.
9. Support DINAMA and UTE to identify measures leading to minimise the risks of contamination by PCB derived from the use of transformers with PCB oils or contaminated with them
10. Cooperate in the elaboration of the final project

**Qualifications and Requirements:**

- Graduate degree in: Chemical Engineering or Electrical Engineering.
- Environmental formation, specially in persistent organic pollutants, in particular PCB.
- Knowledge of the Stockholm and Basel Conventions.
- Good command of the spoken and written English.



## **ANNEX VII : REQUIRED ATTACHEMENTS**

- a) REPORT ON THE USE OF PROJECT PREPARATION GRANT
- b) COUNTRY ENDORSEMENT LETTER (GEF FOCAL POINT IN URUGUAY)
- c) CONFIRMED LETTERS OF COMMITMENT FROM CO-FINANCIERS
  - i) UTE
  - ii) DINAMA
  - iii) COORDINATION CENTRE FOR LATIN AMERICA AND THE CARIBBEAN FOR THE BASEL CONVENTION
- d) AGENCY NOTIFICATION ON MAJOR AMENDMENT AND PROVIDE DETAILS OF THE AMENDMENT IF APPLICABLE.



*PDF/PPG STATUS REPORT*



**GEFSEC PROJECT ID:**

**UNDP PROJECT ID:**

**COUNTRY:** Uruguay

**PROJECT TITLE:** Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay

**OTHER PROJECT EXECUTING AGENCY(IES):**

**GEF FOCAL AREA:** POPs

**GEF OPERATIONAL PROGRAM:**

**STARTING DATE:**

**ESTIMATED DATE OF OPERATIONAL CLOSURE:** NOVEMBER 2007

**ESTIMATED DATE OF FINANCIAL CLOSURE:** DECEMBER 2007

**Report submitted by:**

**Name** Rafael Bernardi                      **Title** Professional Associate                      **Date:**

\_\_\_\_\_ UNDP Environment Focal Point \_\_\_\_\_

## PART I - PREPARATORY ASSISTANCE ACHIEVEMENTS

### A- SUMMARY OF ACTUAL ACHIEVEMENTS OF PREPARATORY PHASE (OUTPUTS AND OUTCOMES), AND EXPLANATION OF ANY DEVIATIONS FROM EXPECTED OUTCOMES

The activities foreseen in the PDF-A document were the formulation of the project, including the elaboration of the MSP proposal and other specific products such as a PCB regulation draft, monitoring plan for electrical equipment in UTE, etc, that were necessary in the preparatory (see table below). This PPG is to be annexed to the MSP Proposal, to show the status of the project and the use of the funds assigned, however is it worth pointing out that even if the Proposal is submitted some expected products are still to be produced in the remaining PDF's time.

According to PDF-A previsions, for the MSP formulation national consultants were contracted by UNDP. Also an international PCB-Expert supported the process. To this end two workshops were held involving all the relevant stakeholders, the first served as preparatory instance to discuss the scope and activities of the project, thus ensuring that the envisioned project includes their needs and expectations. The second workshop served to discuss the activities and advances in the formulation made with the international expert. The PCB expert came to Uruguay in a 10-days mission, worked together with project staff, UTE (as mayor transformer holder), other stakeholders and UNDP. During the mission UTE's facilities and other private maintenance workshop were visited. A first project document was drafted and the principal issues involved in it were discussed in the second workshop. Further drafts were refined via e-mail until the final version to be submitted to the GEF. Agreements for the institutional and financial support to the Project between MVOTMA and UTE were signed.

During this period further contacts with UTE and its technical staff enabled the upgrade of the information gathered in the NIP which will be used in the remaining project's time for the development of a Monitoring Plan for PCB containing equipment. Additionally during the MSP formulation period a first draft for the specific PCB legal framework is being done. These actions contributed to the establishment of a framework that allowed the necessary inter-institutional coordinations and arrangements with UTE, the private sector, and other stakeholders, and are expected to be fully completed by the time of PDF closure.

Some of the in the PDF-A foreseen activities were prioritised and other were shifted to be done during the MSP implementation phase. Taking these changes into account, the following table presents the project funds reassignment.

**Table 1: Completion status of Project Activities**

PROPOSED ACTIVITIES AT APPROVAL	APPROVED			ACTUAL		
	GEF FINANCING	CO-FINANCING	STATUS OF ACTIVITIES	GEF FINANCING COMMITTED	CO-FINANCING COMMITTED	UNCOMMITTED GEF FUNDS
Institutional agreement between MVOTMA and UTE to allow sustainability and project execution	200	200	Done	200	200	0
Coordinated procedure to export equipment and pure PCB oils within the framework of the Basel Convention by MVOTMA; UTE- Customs, ANP, MTOP and other institutions which have PCB-contaminated transformers	1,500	0	In Course	1,500	0	0
Evaluation report and identification of key aspects for the implementation of the National Plan for the management of PCB-contaminated wastes.	2,000	0	Done	2,000	0	0
Plan for the monitoring of transformers in the distribution network with UTE	3,000	800	In Course	4,500	800	0
Plan for the estimation of other PCB-contaminated equipments.	2,500	0	(*)	0	0	0
Operation guide for transformer maintenance firms.	6,500	500	In Course	7,000	500	0
Agreed preliminary measures	300	500	Done	300	500	0
Plan for the characterisation and evaluation of potentially PCB-contaminated sites.	2,500	0	(*)	0	0	0
Development of PCB regulations	5,000	1,000	In Course	6,000	1,000	0
Project Document	21,500	2,000	Done	23,500	2,000	0
<b>Total</b>	<b>45,000</b>	<b>5,000</b>		<b>45,000</b>	<b>5,000</b>	<b>0</b>

(\*) Shifted to be done during the MSP implementation phase

### B – RECORD OF STAKEHOLDER INVOLVEMENT IN PROJECT PREPARATION

All stakeholders involved in the PCB issue, were contacted and invited to participate and give their input to the project. These included UTE as major electrical equipment holder in the country, other electrical equipment holders from the public and private sector outside UTE, maintenance workshops, technical staff from the ministries of health, work and

environment, personnel from state run laboratories and chamber of industry. 25 stakeholders representatives participated of the first workshop while 18 participated of the second one. The list of stakeholders is the following:

ORGANIZATION	DESCRIPTION	WORKSHOP 1	WORKSHOP 2
DINAMA	Environment	✓	✓
UTE – Distribution	Public Power Utility	✓	✓
UTE – Transmission	Public Power Utility	✓	✓
UTE – General Workshops	Public Power Utility	✓	✓
UTE – Environmental Management Unit	Public Power Utility	✓	✓
LATU	Laboratory	✓	✓
Ministry of Health	Health		✓
ANCAP - Environmental Management Unit	Public Fuel refinery	✓	✓
AFE	Trains	✓	
OSE - Environmental Management Unit	Water Utility	✓	✓
Chamber of Industry	Industries	✓	✓
Partiluz	Maintenance	✓	✓
Urutranfor	Maintenance	✓	
Mantenimiento Especializado S.R.L.	Maintenance	✓	
Unilever - Environmental Management Unit	Private sector	✓	
UNDP			✓

From the formulation process the corresponding agreements between MVOTMA and UTE were signed for the institutional and financial support to the Project.

## PART II - PREPARATORY ASSISTANCE FINANCIAL DELIVERY

As mentioned in A even if it the MSP Proposal is ready for submission for GEF review, some expected products are being developed. To this end project's time span has been extended until November 2007, where operational closure is expected. In this context no unspent funds are expected by the end of the project.

**TABLE 2 – PDF/PPG INPUT BUDGET – APPROVALS AND COMMITMENTS**

INPUT DESCRIPTION	ATLAS CODE	APPROVED			COMMITTED		
		STAFF WEEKS	GEF FINANCING	CO-FINANCE	STAFF WEEKS	GEF FINANCING	CO-FINANCE
Local consultants	71300	56	20,700	2,500	88	20,000	2,500
International consultants	71200	5*	14,500	0	6,5	18,500	0
Goods and materials	72300		2,000	1,500		1,200	1,500
Travel	71600		1,500			800	0
Miscellaneous	74500		6,300 *	1,000		4,500	1,000
<b>Total (USD)</b>			<b>45,000</b>	<b>5,000</b>		<b>45,000</b>	<b>5,000</b>

\* Includes UNDP fees

**TABLE 3: ACTUAL PDF/PPG CO-FINANCING**

CO-FINANCING SOURCES FOR PREPARATORY ASSISTANCE				
NAME OF CO-FINANCIER (SOURCE)	CLASSIFICATION	TYPE	AMOUNT	
			EXPECTED (\$)	ACTUAL (\$)
DINAMA	Executing Agency	In kind	5,000	5,000
Total co-financing			5,000	5,000

Additional information as relevant:

1. Indicate PDF/PPG delivery rate (funds disbursed at time of operational closure as percentage of total GEF allocation): **100%**
2. Indicate whether it is expected that there will be unspent PDF/PPG funds at the time of financial closure: **No**

Provide justification for major deviations of actual disbursement from what was planned: **No major deviations were observed.**

## B) Country endorsement letter (GEF focal point in Uruguay)



Government of the Eastern Republic of Uruguay

29<sup>th</sup> August, 2007

To: **Yannik Glemarec**  
GEF Executive Coordinator UNDP  
UNDP  
304 East 45<sup>th</sup> Street, 9<sup>th</sup> Floor  
10017, New York, NY  
United States of America

**Subject:** Endorsement for *Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay*

In my capacity as GEF Operational Focal Point for Uruguay, I confirm that the above project proposal (a) is in accordance with the government's national priorities and the commitments made by Uruguay under the relevant global environmental conventions and (b) has been discussed with relevant stakeholders, including the global environmental convention focal points, in accordance with GEF's policy on public involvement.

Accordingly, I am pleased to endorse the preparation of the above project proposal with the support of UNDP. If approved, the proposal will be prepared and implemented by the Ministry of Housing, Land Use and Environment through its National Directorate for Environment (DINAMA). Further, I request UNDP to provide a copy of the project document for re-endorsement by this office before it is submitted to the GEF Secretariat for CEO endorsement.

I understand that the total GEF financing being requested for this project is **USD 1,099,505**, inclusive of project preparation grant (PPG) (USD 45,000), if any, and Agency fee (10%) to UNDP for project cycle management services associated with this project (USD 99,955).


Sincerely,

Roberto Elissalde  
GEF Operational Focal Point  
Ministry of Housing, Land Use and Environment

Copy to: Convention Focal Point for Stockholm (POPs)

## C) CONFIRMED LETTERS OF COMMITMENT FROM CO-FINANCIERS

### I) UTE

  
*Administración Nacional de Usinas y Trasmisiones Eléctricas*  
*Presidencia*

Montevideo, 26 de junio de 2007.-

Sr. Pablo Mandeville,  
Coordinador Residente de las Naciones Unidas  
Presente,

**Asunto: Proyecto PNUD/GEF MSP  
"Development of the National Capacities  
for the Environmental Sound Management  
of PCBs in Uruguay"**

Por la presente la Administración Nacional de Usinas y Trasmisiones Eléctricas, UTE manifiesta su apoyo decidido al proyecto PNUD/GEF MSP "Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay".

Desde 1994 UTE se ha comprometido firmemente en la identificación y retiro de servicio de equipos contaminados con PCB y la adecuación de prácticas e instalaciones para lograr este fin. Como resultado de esta gestión, a la fecha se han eliminado 66 ton de residuos contaminados con PCB. Esta experiencia ha fortalecido a UTE, permitiéndole contar con un equipo técnico experimentado en el manejo de PCB.

En este sentido UTE ha trabajado en conjunto con la Dirección Nacional de Medio Ambiente durante la formulación del Plan Nacional de Implementación del Convenio de Estocolmo, habiendo colaborado activamente en la elaboración de las componentes específicas para la gestión de PCB en Uruguay y en la formulación del presente Proyecto. Es por este motivo que entendemos fundamental fortalecer las capacidades nacionales para la gestión y el tratamiento final adecuado de estos equipos y residuos.

En el marco del referido Proyecto, UTE se compromete a su apoyo mediante la contribución al mismo con U\$S 200.000 en efectivo destinados al cofinanciamiento de las siguientes actividades según se indica:

- **desarrollo de la base de datos**, UTE aporta U\$S 20.000, siendo el costo total asignado para esta actividad, U\$S 70.000. Esta actividad permitirá mejorar y actualizar el inventario informático.
- **fortalecimiento de la capacidad analítica** para el *screening* de equipos, UTE aporta U\$S 5.000. Esta actividad incluye la adquisición por parte de UTE de dos equipos para análisis de PCB en campo en aceites y la adquisición de un cromatógrafo, por parte de la DINAMA, destinado a la realización de los análisis de PCB de equipos propiedad de UTE. El total asignado para esta actividad es de U\$S 210,000, aportando la DINAMA U\$S 80,000.





*Administración Nacional de Usinas y Trasmisiones Eléctricas*  
*Presidencia*

- el estudio de alternativas de tratamiento locales de aceites con más de 50 ppm PCB, UTE aporta U\$S 70,000, teniendo esta actividad un costo total de U\$S 110,000.
- adecuación del sitio de almacenamiento de equipos contaminados con PCB en Talleres Generales, UTE aporta U\$S 30,000 de un costo total de esta actividad de U\$S 64,000.
- la **remediación de sitios**, UTE aporta U\$S 75,000. Esta actividad tiene un costo total de U\$S 180,000, e incluye la evaluación y reacondicionamiento de predios contaminados con PCB, previéndose que el principal sitio a implementar, sea el depósito actual de Peñarol.

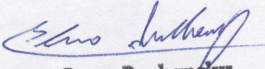
Es importante destacar que en el Proyecto hay asignado U\$S 500,000, U\$S 380,000 aportados por el GEF y el resto por DINAMA, para disposición final de equipos, aceites y residuos provenientes de proyectos demostrativos en los que se incluye parte del pasivo de UTE.

Durante la implementación del proyecto se realizan actividades de capacitación de recursos humanos.

Adicionalmente UTE contribuirá con U\$S 377.000 en especies a través de la provisión de recursos logísticos y técnicos para actividades de identificación y muestreo de equipos eléctricos de la red de UTE, elaboración y actualización de guías relacionadas al manejo, transporte, etc. de equipos contaminados con PCB y a la coordinación del proyecto.

El cronograma de desembolso previsto es: U\$S 110.000 en el primer año de ejecución del Proyecto, y el resto, U\$S 90.000 en el segundo.

Sin otro particular, lo saluda muy atentamente,

  
**Ing. Beno Ruchansky**  
Presidente de UTE



### **Content of the commitment letter submitted by the President of UTE**

On behalf of UTE I wish to Express our support with Project UNDP/GEF MSP “Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay” and its support for its implementation.

Since 1994, UTE has been committed in the identification and phase out of PCB containing equipment and the adequation of practices and facilities to achieve it. As a result 66 tons of equipment and waste have been disposed. This has strengthened UTE’s capacities by training and gaining experience in handling PCBs.

During the development of the Nacional Implementation Plan for the Stockholm Convention, UTE worked with DINAMA and colaborated actively in the elaboration of action lines for PCB management in Uruguay and in the formulation of this Project. Furthermore we understand that the strengthening of nacional capacities for the management and disposal of equipment and waste is esencial.

In the framwork of this Project UTE commits its support to it contributing with USD 200.00 in cash for the co financing of the following activities as described in the Project’s document:

- (a) **Development of a centralizad database for PCBs:** UTE contribuyes with USD 20.000 out of a total amount of USD 70.000. This activity will help to improve and update UTE’s equipment database.
- (b) **Strengthening of the analytical capacities** for the *screening* of equipment, UTE will contribute with USD 5.000. This includes the purchase of two piece of equipement for on-field PCB screening in oil and for the parchase of a chromatograph by DINAMA, which will be dedicated to support PCB analysis in UTE’s equipment. This activity will cost USD 210.000 out which USD 80.000 will be provided by DINAMA.
- (c) **Evaluation of alternative disposal possibilities for oils above 50 ppm.** UTE will support this with USD 70,000, out of the total USD 110.000 assigned to the activity.
- (d) **Upgrading the iterim storage.** This activity is supported with USD 30,000 out of the USD 64.000.
- (e) **Site clean up demonstration projects.** UTE will support this activity providing USD 75.000. The activity is evaluated in USD 180.000 including evaluation and clean up activities of PCB contaminated sites. It is foreseen that UTE’s interim storage in Peñarol will be included in these activities.

Additionally the Project has assigned USD 500.000, USD 180.000 provided by DINAMA, for final disposal of equipment, oil and waste including part of UTE’s.

During the Project’s implementation various training activities will be held for human resources capacity building.

Finally UTE will contribute with a total of USD 377.000 in kind by the provision of logistic and technical support for the identification and sampling of equipments in the power network, as long as the elaboration and update of guidelines regarding handling, transport, etc. of PCB containing equipment and the Project coordination

The budget work plan as foreseen is USD 110.000 in the first year and the rest USD 90.000 in the second year.

Beno Rutschansky  
President

## II) DINAMA



Montevideo, 5 de Julio de 2007

Sr. Pablo Mandeville  
Coordinador Residente de las Naciones Unidas

Presente

**Ref.: Proyecto PNUD/GEF, MSP (Médium Size Project)  
“Development of the National Capacities for the  
Environmental Sound Management of PCBs in Uruguay”**

De mi mayor consideración:

Por medio de la presente, el Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente (MVOTMA), desea transmitir su firme compromiso en la ejecución del Proyecto PNUD/GEF, MSP (Médium Size Project) “Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay”

Con el Proyecto de referencia Uruguay inicia el camino hacia la concreción de las acciones identificadas durante la formulación del Plan Nacional de Implementación del Convenio de Estocolmo, que fuera presentado en Junio del 2006 ante la Secretaria del mismo. En Uruguay los PCBs son los únicos compuestos incluidos en el Convenio que mantienen un uso actual, excluyendo los COPs que se generan en forma involuntaria. Es por esto que creemos fundamental establecer un plan nacional de gestión integrada para los equipos y aceites dieléctricos con PCB incluyendo medidas específicas para cada una de las etapas del ciclo de vida con el fin de prevenir riesgos para la salud y el ambiente.

Con el firme compromiso y decisión de llevar a este Proyecto a buen término, el MVOTMA aportará los recursos del Presupuesto Nacional por USD 220.000 en efectivo y USD 273.000 en especies a través de la participación de personal técnico, prestación de oficinas y laboratorio de su Dirección Nacional de Medio Ambiente y la retención de IVA correspondiente al personal del proyecto.

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Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente

Zabala 1432 - Teléfono: 916 39 89 - secvntro@mivotma.gub.uy - Montevideo - Uruguay



Adicionalmente la Administración de Usinas y Transmisiones Eléctricas (UTE) contribuirá con USD 200.000 en efectivo y USD 377.000 en especies mediante la provisión de recursos logísticos y técnicos para actividades de identificación y muestreo de equipos eléctricos de la red de UTE, elaboración y actualización de guías relacionadas al manejo, transporte, etc. de equipos contaminados con PCB y a la coordinación del proyecto.

Sin otro particular, reciba Usted mis más distinguidos saludos

Arq. Mariano Arana  
Ministro

---

Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente

Zabala 1432 - Teléfono: 916 39 89 - secmro@mvtoma.gub.uy - Montevideo - Uruguay

**Content of the commitment letter submitted by the Minister for Housing, Land Use and Environment**

On behalf of the Ministry for Housing, Land Use and Environment (MVOTMA) I am most pleased to transmit you our firm commitment on the execution of Project UNDP/GEF, MSP (Medium Size Project) "Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay"

This Project starts the implementation of the actions identified under the Uruguayan National Implementation Plan for the Stockholm Convention, submitted to the Secretariat in June of 2006. Excluding those unintentionally produced, PCBs are the only POPs that have an actual use in the country. Therefore we believe that the establishment of National Management Plan for PCBs covering the whole lifecycle of oils and equipment is of the uttermost importance to reduce risks to the human health and the environment.

Underlining our firm commitment and decision for the successful implementation of this Project, the MVOTMA will contribute with USD 200.000 in cash from the National Budget and USD 273.000 in kind by the provision of technical staff, offices and laboratory of its National Direction for the Environment and the taxes corresponding to the Project's staff.

Additionally UTE will contribute with USD 200.000 in cash and USD 377.000 in kind by the provision of logistic and technical support for the identification and sampling of equipments in the power network, the elaboration and update of guidelines regarding handling, transport, etc. of PCB containing equipment and the Project coordination.

Yours sincerely,

Arch. Mariano Arana  
Minister for Housing, Land Use and Environment

### III) Coordination Centre for Latin America and the Caribbean for the Basel Convention



Centro Coordinador  
del Convenio de Basilea  
para América Latina y El Caribe

Montevideo, 25 de mayo de 2007

Sr. Pablo Mandeville  
Coordinador Residente de las Naciones Unidas

Presente

**Ref.:** Proyecto PNUD/GEF, MSP (Medium Size Project)  
"Development of the National Capacities for the  
Environmental Sound Management of PCBs in Uruguay"

De mi mayor consideración:

Por la presente deseo participarle el interés del Centro Coordinador del Convenio de Basilea para América Latina y el Caribe, en apoyar la ejecución del Proyecto PNUD/GEF, MSP (Medium Size Project) "Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay"

El Centro Coordinador ha venido trabajando de forma tal de conceptualizar los proyectos, programas y actividades en un escenario de gestión integral de sustancias y residuos, contribuyendo en facilitar la implementación de los convenios del bloque de químicos. Creemos que nuestro Centro puede constituirse en un actor estratégico para facilitar los procesos de creación y fortalecimiento de capacidades nacionales y regionales a través de la capacitación de los actores claves en la gestión ambientalmente adecuada de sustancias y residuos peligrosos, así como en la elaboración y difusión de información especializada.

En este sentido, ofrecemos las capacidades de nuestro Centro en lo referente a los contactos regionales para desarrollar las actividades de difusión de los resultados de este proyecto, permitiendo así la transmisión de experiencias a la región.

Sin otro particular, le saluda muy cordialmente

Ing. Quím. Marisol Mallo  
Directora del Centro Coordinador del Convenio de  
Basilea para América Latina y el Caribe

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Avenida Italia 6201, CP 11500, Montevideo, Uruguay  
(5982) 601 3724, Int. 183 / 158 / 159 Fax:(5982) 601 3724 Int. 157

**Content of the commitment letter submitted by the Coordination Centre for Latin America and the Caribbean for the Basel Convention**

On behalf of the Coordination Centre for Latin America and the Caribbean for the Basel Convention I wish to express our support to the UNDP/GEF Project "Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay"

The Coordination Centre has been working to conceptualize projects, programmes and activities with an integral approach for chemicals and waste management, contributing to the implementation of the chemicals block Conventions. We believe that our Centre plays a strategic role in the facilitation of the processes for the creation and strengthening of the regional and national capacities by training the key stakeholders involved in the chemicals and waste management as well as in the elaboration and diffusion of technical information.

To this end we will support the Project providing the capacities of our Centre in relation to regional contacts to the develop activities for the diffusion of the Project's results and experiences.

Chem. Eng. Marisol Mallo  
Director

**ANNEX VIII : TECHNICAL PROPOSAL LEGAL FRAMEWORK FOR PCB MANAGEMENT**

(as of december 2007)

## PROPUESTA TÉCNICA

Reglamento  
para la

# **Gestión Integral de Bifenilos Policlorados (PCB), líquidos dieléctricos, equipos y residuos contaminados**

(incluye modificaciones del segundo taller)

Diciembre 2007



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## Gestión integral de Bifenilos Policlorados, líquidos dieléctrico, equipos eléctricos y sus residuos

### OBJETIVO

El propósito de esta normativa es establecer el marco para la gestión ambientalmente adecuada de equipos y productos conteniendo bifenilos policlorados (PCB) durante todo su ciclo de vida en concordancia con el Convenio de Estocolmo y el Convenio de Basilea, incluyendo líquidos dieléctricos que los contengan, equipos y residuos contaminados con ellos.

### DEFINICIONES

1. A los efectos de esta normativa se definirá por “PCB” a:
  - a) bifenilos policlorados (BPC o por su sigla en inglés PCB),
  - b) terfenilos policlorados (TPC o por su sigla en inglés PCT),
  - c) difenilmetanos policlorados: monometil tetraclorodifenil metano, monoetil tetraclorodifenil metano, monometil diclorodifenil metano, monometil dibromodifenil metano,
  - d) cualquier mezcla de las anteriores sustancias.

### ALCANCE

2. Las personas físicas o jurídicas, públicas o privadas en su carácter de propietarios, poseedores y tenedores a cualquier título de los siguientes equipos, líquidos, etc., así como las empresas que realicen servicios relacionados a los mismos, deberán cumplir las disposiciones establecidas en la presente normativa:

**Preparaciones, productos químicos o líquidos** que contengan en total más de los niveles detectables de PCB o que los pueda contener.

**Transformadores** de potencia, distribución y medida sumergidos en líquido dieléctrico.

**Capacitores (individuales) o bancos de capacitores** con más de 3 l de volumen total que contengan líquido dieléctrico, impregnado, o de otra forma.

**Otros equipos eléctricos** con más de 3 l de volumen de líquido dieléctrico.

Siempre que sea razonablemente posible, los artículos o elementos que contengas PCB, que sean o no parte de un equipo o aparato, etc. y que no son objeto de esta normativa, deberán ser manipulados, almacenados, transportados y eliminados según los lineamientos establecidos en esta.

### SOBRE LA CLASIFICACIÓN DE TRANSFORMADORES, CAPACITORES, LÍQUIDOS DIELECTRICOS Y OTROS EQUIPOS

3. Los líquidos dieléctrico, transformadores y otros equipos eléctricos serán clasificados según su contenido en PCB en:
  - a) **PCB PURO**, aquellos cuyo contenido en PCB sea mayor o igual a 2000 ppm.
  - b) **CONTAMINADO CON PCB**, aquellos cuyo contenido en PCB sea mayor o igual a 50 ppm e inferior a 2000 ppm.
  - c) **LIBRE DE PCB**, aquellos cuyo contenido en PCB sea mayor a 2 ppm e inferior a 50 ppm.
  - d) **EXCENTO DE PCB**, aquellos adquiridos con certificados libre de PCB, extendidos por el fabricante en origen o que mediante análisis químico según un método validado internacionalmente se demuestre que no tienen niveles detectables de PCB y que en ambos casos no hayan habido cambios en el líquido dieléctrico (recambio o relleno de líquido dieléctrico, etc.).

4. Los capacitores serán clasificados según su contenido en PCB en:
- a) **PCB**
  - b) **LIBRE DE PCB:** aquellos capacitores adquiridos con certificados libre de PCB, extendidos por el fabricante en origen o que mediante análisis químico según un método validado internacionalmente se demuestre que tienen menos de 50 ppm PCB

La clasificación de un capacitor que surge a partir del análisis químico de su líquido dieléctrico, podrá ser extendida a otros capacitores que tengan las mismas características: fabricante, marca, modelo y año de fabricación.

#### **SOBRE EL ANÁLISIS**

**5. (Certificados de análisis):** La declaración de equipos y líquidos dieléctrico comprendidos en esta normativa, deberá estar avalada mediante el correspondiente análisis químico. El mismo será emitido por la empresa de mantenimiento registrada responsable de la supervisión del muestreo y análisis de detección rápida (kit) y/o el laboratorio en caso de requerirse análisis cromatográfico.

Copia autenticada de los certificados de análisis deberán ser incluidos en la Declaración Jurada y deberán estar disponibles en caso de inspección.

**6.** En aquellos casos en que el análisis de detección rápida (kit) de un resultado mayor a 50 ppm, será obligatoria la verificación cromatográfica.

**7. (Análisis químico cromatográfico):** El análisis de líquidos dieléctricos y suelos comprendidos en este decreto, deberán ser realizados según los métodos de muestreo y analíticos que DINAMA defina a tal fin y serán realizados por laboratorios registrado para el análisis cromatográfico de PCB.

**8. (Análisis anteriores):** Análisis anteriores a la entrada en vigencia de esta normativa, que hayan sido realizados por metodologías validadas internacionalmente, serán válidos para la declaración jurada, siempre que el equipo se haya mantenido “cerrado” desde la fecha de realización del mencionado análisis.

#### **SOBRE LOS POSEEDORES Y SUS OBLIGACIONES**

**9. (Poseedores de equipos):** Toda persona física o jurídica, pública o privada que posea o en cuyo predio se encuentren transformadores incluidos en el alcance de esta normativa, deberá registrarse y presentar la declaración jurada que a tales efectos establezca la DINAMA. Este registro deberá incluir banco de capacitores, líquidos dieléctricos y las existencias de residuos, sitios y suelos contaminados con PCB.

Las declaraciones correspondientes deberán ir acompañadas de la siguiente documentación:

- (a) *Plan de gestión* de los equipos contaminados con PCB.
- (b) *Plan de contingencias* ante incidentes o accidentes
- (c) *Plan de análisis*
- (d) Certificados de *análisis*
- (e) Certificados de *descontaminación*, emitido por la empresa que haya realizado la operación, acompañado de los certificados de los análisis realizados luego de las operaciones de aquellos equipos que hayan sido descontaminados para su posterior reutilización total o parcial.
- (f) Documentos de control y seguimiento de los equipos declarados que hayan sido entregados a una empresa autorizada, para su almacenamiento, descontaminación, eliminación etc.
- (g) Certificados de eliminación o destrucción, a que hace referencia 60

Se establece un plazo de **180** días corridos contados a partir de publicada esta normativa en el Diario Oficial, para la realización de la primer declaración jurada. El MVOTMA podrá establecer otros sujetos a registro.

El quedar excluido del registro no exime del cumplimiento de esta normativa.

**10. (Esquema de declaración):** Para la presentación de los resultados de análisis del contenido de PCB en transformadores, requeridos en la declaración, se podrá optar por el siguiente esquema, siempre y cuando se presente un plan de análisis tal que el contenido de PCB del último equipo sea realizado, en un plazo después de finalizado el período de registro de poseedores de equipos, no mayor a:

- 12 meses para 1 a 20 equipos
- 18 meses para 20 a 100 equipos
- 36 meses para más de 100 equipos

Para aquellos poseedores con más de 1000 equipos, este plazo será propuesto en el Plan de Análisis y aprobado por DINAMA.

**11. (Presunción de PCB):** Todo transformador al que no se le haya realizado el análisis de PCB ya sea por imposibilidad de acceso a la toma de muestra, por no estar debidamente declarado u otra razón, será considerado como equipo clasificado PCB y se le aplicarán los plazos establecidos para la disposición final de equipos con más de 2000 ppm, hasta tanto no se demuestre lo contrario.

El MVOTMA a través de DINAMA podrá extender la presunción de PCB a otros equipos.

**12. (Responsabilidades):** Toda persona física o jurídica, pública o privada que posea, o en cuyo predio se encuentren transformadores, capacitores, líquidos dieléctricos o residuos comprendidos dentro de esta reglamentación, será responsable por:

- (a) asegurar la trazabilidad de los equipos,
- (b) todas las operaciones que se realicen con ellos en el predio propio y asegurar que las operaciones realizadas por terceros sobre sus equipos, cumplan con la normativa vigente, previniendo riesgo para la salud y medio ambiente, sin perjuicio de las responsabilidades del tercero,
- (c) enviar y actualizar anualmente todo cambio en las características de los mismos por operaciones de mantenimiento, (sustitución de partes, cambios de volumen o concentración, reclasificación, etc.), relocalización, transporte, eliminación u otro cambio en la información declarada, según 9 a la DINAMA antes del 1 de diciembre de cada año.
- (d) realizar operaciones de mantenimiento (incluyendo actividades de reclasificación de transformadores), almacenamiento centralizado a largo plazo, tratamiento, etc. de sus equipos, líquidos dieléctricos y residuos sólo en empresas registradas en la DINAMA
- (e) permitir y facilitar el acceso, a la persona encargada del control e inspección, a las instalaciones y a los equipos declarados

**13.** Todo transformador con un contenido de PCB mayor o igual a 50 ppm que presente fugas deberá ser solucionado inmediatamente a partir del momento en que se hayan detectado, además se deberá informar de esta situación a DINAMA para establecer las medidas de seguridad pertinentes.

**14.** Los capacitores en servicio conteniendo PCB deberán ser inspeccionados visualmente en busca de fallas por ej. sobrecalentamiento, corrosión, roturas en aisladores de porcelana, fugas. En caso de encontrar fallas deberán ser retirados de servicio y acondicionados para su almacenamiento o disposición final.

**15.** Con el fin de minimizar los riesgos a la salud y el ambiente en caso de incendio, los poseedores de bancos donde coexistan capacitores con PCB y libre de PCB, harán los esfuerzos necesarios para separarlos físicamente.

**16.** Con el fin de evitar el contenido de PCB en otras aplicaciones, las personas físicas o jurídicas, públicas o privadas, promoverán la incorporación de criterios en la adquisición de equipos que garanticen la ausencia de partes que contengan PCB en transporte, aviones, barcos, trenes, equipos de comunicación, navegación y control electrónico entre otros.

## **SOBRE EL ETIQUETADO**

**17. (Etiquetado de equipos):** Todo transformador, líquido dieléctrico o residuo que haya sido declarado según lo establecido en 9, deberá estar claramente identificado y en condiciones legibles especificando si se trata de: “**PCB PURO**”, “**CONTAMINADO CON PCB**”, “**LIBRE DE PCB**”, “**EXENTO DE PCB**”.

La etiqueta deberá colocarse en una parte del equipo accesible de forma que pueda ser fácilmente leída por el personal que realiza la inspección o servicio y en caso de emergencia. Para tal fin se establecerá el contenido, formato y especificaciones del etiquetado.

**18. (Etiquetado de capacitores):** Todo capacitor que haya sido declarado según lo establecido en 9, deberá estar claramente identificado y en condiciones legibles especificando presencia o ausencia de PCB. En el caso de banco de capacitores que hayan sido identificados con PCB, se podrá optar por el etiquetado colectivo del banco indicando número de capacitores.

Cuando no se conozca el estado del banco en cuanto al contenido de PCB, se podrá realizar el etiquetado colectivo indicando “**CLASIFICACIÓN PENDIENTE**”, número total de capacitores, etc.. Si un capacitor es reemplazado o retirado de servicio, deberá ser etiquetado.

Para cada caso la DINAMA establecerá formato y contenido de la etiqueta.

**19. (Actualización de información):** En caso de existir cambios en la información contenida en la etiqueta, ésta deberá ser sustituida por una nueva con la información actualizada dentro de los 30 días posteriores al cambio.

**20. (Remoción de etiquetas):** Queda terminantemente prohibida la remoción de las etiquetas, salvo para la actualización de la información y es responsabilidad de los propietarios o tenedores el asegurar su correcto estado de conservación.

#### **SOBRE FABRICANTES, MANTENIMIENTO, ALMACENAMIENTO, TRATAMIENTO Y OPERACIONES CON LÍQUIDOS DIELECTRICOS, EQUIPOS Y SUS PARTES**

**21. (Registro de empresas de mantenimiento):** Los fabricantes de transformadores y las empresas de mantenimiento, incluyendo aquellas que realizan actividades de reclasificación de transformadores, deberán estar registradas en DINAMA. Aquellas empresas de mantenimiento que decidan o proyecten dar servicio a equipos conteniendo PCB deberán además, presentar el detalle de las medidas de seguridad a implementar para la manipulación del equipo contaminado y cumplir los requerimientos técnicos que se establezcan a tal fin. El registro deberá realizarse a los 120 días corridos de entrada en vigencia esta normativa.

**22. (Documentación de operaciones de empresas de mantenimiento):** Las empresas de mantenimiento de equipos que contengan PCB, deberán documentar detalladamente las operaciones que involucren equipos con PCB, incluyendo datos de los referidos equipos, contenido de PCB, volúmenes de líquido dieléctrico manipulados y su destino, datos de su propietario, ubicación física en las instalaciones, además deberá tener copia de la correspondiente información probatoria y estarán obligadas a:

- a) Asegurar una adecuada gestión de los equipos, minimizando riesgos para la salud y el ambiente,
- b) Informar anualmente a la DINAMA, el detalle de las operaciones realizadas con los equipos contaminados,
- c) Informar la lista de clientes atendidos
- d) Comunicar a sus clientes las obligaciones emanadas de la presente norma.

**23. (Certificados de contenido de PCB):** Previo a la realización de operaciones de mantenimiento será necesario la presentación a la empresa de mantenimiento del correspondiente certificado de análisis de PCB. En caso de no presentarse dicho certificado, la empresa de mantenimiento deberá realizar el muestreo y análisis mediante kit y si corresponde enviar la muestra a verificación cromatográfica, comunicando el resultado a DINAMA.

La empresa de mantenimiento deberá entregar certificado de análisis por aquellas operaciones que impliquen cambios en las características del líquido dieléctrico, realizado al finalizar dichas operaciones.

**24. (Mantenimiento):** Para la realización de operaciones de mantenimiento que impliquen la apertura del sistema y presenten riesgo de contacto con el líquido dieléctrico, será condición necesaria que el contenido de PCB en el mismo en el momento de realizar la intervención, sea menor o igual a 50 ppm. Quedan excluidas las actividades de muestreo y las previstas en el plan de contingencias

(25 y 26 aun están en discusión)

**25. (Reclasificación):** Todo transformador con más de 50 ppm PCB que haya experimentado operaciones de descontaminación con el fin de ser reutilizado, sólo podrá ser declarado y etiquetado como:

- 1)“**LIBRE DE PCB**” si la concentración de PCB en su nuevo líquido dieléctrico, se mantiene por debajo de las 50 ppm luego de transcurridos 90 días en servicio desde la sustitución del líquido.
- 2)“**CONTAMINADO CON PCB**”, si la concentración de PCB en su nuevo líquido dieléctrico se mantiene entre 50 y 2000 ppm, luego de transcurrido, 90 días en servicio desde la sustitución del líquido.

El líquido dieléctrico utilizado para la reclasificación de los transformadores contaminados con PCB, debe representar un riesgo sensiblemente menor para la salud y el ambiente.

En cualquiera de los casos la condición deberá ser acreditada mediante dos análisis químicos, uno realizado inmediatamente luego de la operación de descontaminación y el otro luego de transcurrido el plazo anterior.

**26. (Reuso de partes):** Será condición necesaria para la reparación de transformadores, que las partes metálicas sean descontaminadas previamente, si estas provienen de equipos originalmente contaminados con más de 50 ppm de PCB. Las piezas metálicas se considerarán descontaminadas cuando su concentración superficial sea inferior a 10 µg/100 cm<sup>2</sup>.

**27. (Registro de empresas de tratamiento, almacenamiento, disposición final):** Toda empresa o compañía que realice servicio de tratamiento, almacenamiento centralizado a largo plazo o disposición final de equipos, líquidos dieléctricos y residuos alcanzados por esta normativa, deberá estar inscripta en la Dirección Nacional de Medio Ambiente en el registro que se establezca a tal fin y contar con la correspondiente Autorización Ambiental Previa, según lo establecido en el Decreto 349/005, incluyendo una evaluación del sitio.

**28. (Documentación de operaciones de empresas de tratamiento y almacenamiento):** Las empresas de tratamiento y almacenamiento centralizado a largo plazo deberán documentar detalladamente las operaciones que involucren equipos con PCB, incluyendo datos de los referidos equipos, contenido de PCB, datos de su propietario, ubicación física en las instalaciones y deberán tener copia de la correspondiente información probatoria.

**29. (Reportes anuales de empresas de tratamiento y almacenamiento):** Las empresas de tratamiento y almacenamiento centralizado a largo plazo deberán presentar ante la DINAMA reportes anuales de los equipos, residuos, líquido dieléctricos, etc. tratados y almacenados indicando tipo de equipo, operaciones, duración, clasificación de los equipos, volúmenes de líquido dieléctrico manejados y su destino, etc.

**30. (Plan de cierre):** Todas las empresas de mantenimiento que manejen equipos con PCB, que terminen sus actividades, deberán presentar por escrito a la DINAMA para su aprobación, un plan de cierre que incluya una evaluación del sitio, por lo menos 90 días antes de la fecha prevista de cierre del local.

**31. (Condiciones de equipos):** Los responsables de las empresas de tratamiento o del almacenamiento centralizado a largo plazo, deberán asegurar el correcto estado de los equipos y no permitir el tratamiento o almacenamiento de equipos luego de los plazos establecidos por esta normativa para la eliminación.

**32.** Todo transformador, capacitor y líquido con contenido de PCB mayor o igual a 50 ppm que esté temporalmente fuera de servicio deberá ser almacenado en condiciones adecuadas en un sitio específico para PCBs a partir de 15 días en que sale de servicio.

**33.** Los transformadores y capacitores con más de 50 ppm PCB, no podrán ser almacenados con fines de reuso, por un periodo superior a los 2 años salvo autorización expresa de DINAMA. Quedan excluidos los equipos que estén en proceso de clasificación.

**34.** Los equipos y aparatos utilizados durante la manipulación en operaciones de mantenimiento, almacenamiento, tratamiento, etc. de equipos, residuos, líquidos, etc. que contengan PCB, no podrán ser utilizados para la operación de otro tipo de materiales, si no han sido descontaminado previamente. Para evitar confusiones es aconsejable que estos equipos y aparatos estén diferenciados como por ej.: etiquetados o identificados con códigos de color.

**35.** Todos los residuos y desechos que resulten de las operaciones de mantenimiento, almacenamiento, tratamiento y limpieza de equipos, líquidos y sitios con PCB, deben ser considerados como contaminados con PCBs, y por consiguiente se deben almacenar como desechos de PCBs.

**36. (Condiciones de almacenamiento para re-uso):**

Sin perjuicio de otras disposiciones específicas, aquí se establecen las condiciones mínimas que debe cumplir el recinto utilizado como almacenamiento de equipos que contengan PCB para reuso:

- (a) Será utilizado *exclusivamente* para fines de almacenamiento de equipos, líquidos dieléctricos, materiales y residuos conteniendo PCB.
- (b) Deberá el área estar delimitada.
- (c) Deberá estar emplazado en terrenos no inundables.
- (d) Deberá tener acceso restringido.
- (e) Los pisos deben tener superficies lisas, impermeables.
- (f) Deberá contar con infraestructura para manejar situaciones contenidas en el plan de contingencia según 9.
- (g) Proveer contención secundaria de al menos
  - i. 125 % del volumen de los líquidos almacenados en tanques estacionarios o que se trate de equipos aislados,
  - ii. 25% del volumen total cuando se trate de un perímetro en el que se almacenan tambores o equipos y/o materiales contaminados,

Los equipos, líquidos y residuos contaminados con PCB deben almacenarse según los siguientes criterios:

(hasta aquí se llegó en el 2º Taller )

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1. Los transformadores que presenten pérdidas o signos visibles de mal estado deben ser almacenados vacíos.
2. Las piezas pequeñas y residuos deben almacenarse en tambores de acero.
3. Los líquidos deben almacenarse en tambores de acero.
4. Los transformadores y tambores de acero deberán estar aislados del suelo utilizando materiales no metálicos.
5. Equipos grandes sin drenar se deben colocar en bandejas de derrame.

**37. (Condiciones de instalaciones de almacenamiento centralizado a largo plazo):** A las condiciones establecidas en 36 para almacenamiento para reuso, se deben agregar las siguientes :

- (a) El sitio seleccionado para el almacenamiento no podrá limitar con dormitorios u otros espacios destinados a la permanencia de humanos o animales
- (b) El acceso al perímetro debe estar restringido, accediendo a él sólo el personal autorizado
- (c) El local deberá estar adecuadamente señalizado indicando las vías de acceso
- (d) Debe estar diagramado de forma que dejé margen para el tránsito de personas y vehículos de carga.
- (e) La instalación debe estar construida y diseñada de tal forma que permita su fácil limpieza y descontaminación, evitando que cualquier derrame llegue al suelo, cursos de agua, red de saneamiento, etc.
- (f) Debe tener sistemas de contención secundaria con una capacidad superior al 125% del volumen almacenado dentro del mismo.
- (g) No debe existir conexión del sistema de contención secundaria con el de pluviales, con la red de saneamiento o con cursos de agua.
- (h) El nivel de iluminación debe permitir realizar de forma segura inspecciones visuales de equipos, lectura de etiquetas y otras operaciones que fueran necesarias. Además deberá contar con iluminación de seguridad.
- (i) Los equipos, materiales, residuos almacenados deben estar etiquetados según el diseño que se establezca para tal fin.
- (j) Debe estar localizado a más de 1.000 m de los siguientes: planta de tratamiento de agua potable, planta de procesamiento de comidas y alimentos, centros de enseñanza o lugares para cuidados de niños y ancianos, hospitales, centros comerciales y depósitos de materiales combustibles.

A los criterios de almacenamiento para reuso descriptos en 43 para equipos, líquidos y residuos, etc., se debe incluir que la disposición de tambores, equipos, etc. no debe superar la altura de 2.

Sin perjuicio de lo anterior, el MVOTMA podrá establecer condiciones más restrictivas cuando a juicio de DINAMA se considere que existe riesgo para la salud y el ambiente.

## **SOBRE LOS PLANES DE SUSTITUCIÓN, RETIRO Y LOS CRONOGRAMAS**

**38. (Cronograma):** Con el fin de dar cumplimiento a las obligaciones contraídas en el Convenio de Estocolmo según Ley 17.732, se establece el siguiente cronograma para el retiro de servicio, tratamiento y disposición final de transformadores y líquidos dieléctricos:

- (a) Todo transformador y líquido dieléctrico con un contenido de PCB igual o mayor a 500 ppm deberá ser eliminado o tratado para reducir su contenido en PCB a menos de 500 ppm y de ser posible inferior a 50 ppm antes del **1 de Diciembre de 2018**.
- (b) Todo transformador y líquido dieléctrico con un contenido de PCB igual o mayor a 50 ppm y menor a 500 ppm deberá ser eliminado o descontaminado a menos de 50 ppm antes **1 de Diciembre de 2022**.

Las existencias de residuos y suelos contaminados deberán ser eliminados o dispuestos antes del **1 de Diciembre de 2023**.

**39. (Cronograma de salida de servicio y eliminación de capacitores):** Con el fin de dar cumplimiento a las obligaciones contraídas en el Convenio de Estocolmo según Ley 17.732, se establece el siguiente cronograma de actividades para los capacitores incluidos en el alcance de esta norma:

- (a) Clasificación de los capacitores, identificando presencia o ausencia de PCB antes del **1 de Diciembre de 2015**
- (b) Eliminación en forma ambientalmente adecuada de aquellos capacitores que contengan PCB antes del **1 de Diciembre de 2023**.

**40.** Dentro de la aplicación de los presentes cronogramas, los responsables de los equipos, deberán dar prioridad a la descontaminación y/o eliminación de aquellos equipos que por su estado, localización u otro los hagan especialmente riesgosos para la salud o el ambiente.

**41.** Sin perjuicio de los anteriores, el MVOTMA podrá establecer plazos menores para aquellos transformadores, capacitores, líquidos dieléctricos, y residuos, que a juicio de DINAMA se consideren especialmente riesgosos para la salud y el ambiente, ya sea por su estado, localización, u otra razón.

**42.** Con el fin de minimizar riesgos para la salud y el ambiente y sin perjuicio del cumplimiento del cronograma establecido en 38, los transformadores con un contenido PCB superior a 50 ppm solo podrán continuar en operación si cumplen las siguientes condiciones:

1. estar en buen estado, no presentando señales visibles de corrosión, fugas o pérdidas del líquido
2. estar emplazado en instalaciones adecuadas y,
3. estar ubicado a más de 1.000 m de distancia de: plantas de tratamiento de agua potable, plantas de procesamiento de alimentos, centros de enseñanza o lugares para cuidados de niños y ancianos, hospitales, centros comerciales y depósitos de materiales combustibles.

## **SOBRE EL TRANSPORTE**

**43. (Transportista):** El transporte de equipos, materiales, residuos, etc. con PCB deberá ser realizado por empresas registradas a tal fin que cumplan con la reglamentación específica del Ministerio de Transporte y Obras Públicas (MTO). Para el transporte carretero, fluvial, marítimo o aéreo de equipos, líquidos dieléctricos, materiales contaminados, residuos y otros que contengan PCB se seguirán las normativas específicas establecidas para el transporte nacional e internacional de mercancías peligrosas.

## **SOBRE ACCIDENTES, CONTINGENCIAS Y OTROS**

**44. (Medidas de seguridad):** Toda empresa vinculada a actividades (almacenamiento, mantenimiento, uso, tratamiento, disposición y transporte) con equipos, materiales, líquidos, etc. conteniendo PCB, deberá:

- (a) desarrollar e implementar un plan de procedimientos en caso de accidentes en acuerdo con las autoridades competentes a nivel local y nacional.
- (b) presentar copia de este plan a las entidades nacionales responsables de actuar en caso de accidentes.



- (c) contar con equipos de protección personal adecuados en calidad y cantidad (máscaras, ropa, lentes, guantes, etc.)
- (d) contar con equipos de repuestas a emergencias (primeros auxilios, lavador de ojos, etc.)
- (e) contar con los implementos de seguridad necesarios para la atención primaria de accidentes: material absorbente, extinguidores, sistema de alarmas, etc.

**45. (Accidentes, fugas, incendios, etc.):** Se deberá comunicar inmediatamente a las autoridades competentes en materia de salud, seguridad, y ambiente, de cualquier accidente, que ocurra vinculado a PCB o equipos que lo contengan.

**46. (Derrames):** Derrames de líquidos que puedan contener PCB en: alcantarillas, aguas superficiales o potables, suelos plantados con vegetales para consumo animal o humano, etc., deberán ser comunicados inmediatamente a las autoridades competentes en materia de salud, seguridad y ambiente.

**47. (Limpieza de derrame):** Todo sitio donde haya ocurrido cualquier tipo de accidente con líquidos dieléctricos que puedan contener PCBs, será considerado como potencialmente contaminado y si corresponde deberá ser descontaminado de forma que no presente riesgos para quienes trabajan. Las actividades de descontaminación deberán ser iniciadas inmediatamente y supervisadas por personal capacitado.

**48. (Muestra post descontaminación y limpieza):** Para aquellos derrames que ocupen más de 1 m<sup>2</sup> se deberá presentar ante la DINAMA los resultados del muestreo del área afectada y los niveles de PCB residuales luego de las actividades de descontaminación.

#### **SOBRE LOS SITIOS CONTAMINADOS CON PCB**

**49. (Declaración):** Los sitios donde se lleven o se hayan llevado a cabo actividades potencialmente contaminantes con PCB incluidas en la siguiente lista, deberán registrarse según lo establecido en 9:

- (a) Poseedores de equipos contaminados
- (b) Tratamientos de equipos eléctricos, líquidos, residuos, conteniendo PCB
- (c) Mantenimiento de equipos conteniendo PCB
- (d) Almacenamiento de equipos líquidos, residuos, conteniendo PCB
- (e) Chatarrerías
- (f) Fundiciones

Sin perjuicio de lo anterior, el MVOTMA podrá ampliar esta lista incluyendo otras actividades que a juicio de DINAMA se consideren especialmente riesgosos para la salud y el ambiente.

**50. (Calidad de suelos):** se establecen los siguientes estándares de calidad de suelo en referencia para la evaluación del nivel de contaminación originada derivada de líquidos dieléctricos conteniendo PCB:

(valores aún no definidos)

**51. (Responsabilidad):** Las actividades de descontaminación, limpieza, intervención o remediación de sitios contaminados con PCB y los costos asociados a las mismas, serán responsabilidad de la persona física o jurídica, pública o privada causante de la contaminación. En el supuesto de no existir un causante identificable, el responsable de estas actividades será el poseedor del sitio.

**52. (Cambio en el uso del suelo):** En caso de existir cambios en el uso del suelo según lo establecido en 50 que ameriten actividades de descontaminación, limpieza, intervención o remediación, los costos serán a cargo de quién tome la iniciativa del cambio de uso.

**53. (Empresas de descontaminación, limpieza, remediación de suelos):** Las actividades de intervención, limpieza, descontaminación, remediación u otra en un sitio contaminado con PCB deberán ser realizadas por una empresa con experiencia acreditable en la materia. Para la realización de estas actividades se deberá presentar la solicitud de autorización ante la DINAMA. Dicha solicitud debe ir acompañada del plan de gestión donde se debe detallar las operaciones a realizar, tecnologías a emplear y plan de gestión de los residuos generados durante dichas operaciones, entre otros.

**54. (Evaluación de sitio):** Luego de terminadas las actividades de intervención, limpieza, descontaminación,

remediación u otra se presentará ante DINAMA la evaluación de sitio en referencia a PCB.

## **SOBRE LOS RESIDUOS**

**55. Líquidos dieléctricos y otros líquidos** con más de 50 ppm PCB serán considerados residuos peligrosos y con menos de 50 ppm PCB deberán ser gestionados por empresas autorizadas.

**56. (Chatarra):** Partes metálicas o equipos que hayan estado en contacto o contenido PCB con más de 50 ppm, se considerarán residuos peligrosos y sólo podrán ser procesados por empresas autorizadas por DINAMA. Partes metálicas o equipos, que hayan estado en contacto o contenido PCB con menos de 50 ppm, sólo podrán ser reutilizados para reparación de transformadores o ser procesados en fundiciones de chatarra autorizadas por DINAMA.

**57. (Papel y madera):** Papel y madera provenientes de equipos con más de 2 ppm en PCB, serán considerados residuos peligrosos y deberán tener destinos finales autorizados, no admitiéndose su reuso.

**58. (Otros residuos):** Los materiales que hayan estado en contacto con líquido dieléctrico u otro líquido con más de 50 ppm, incluyendo equipos de protección personal, serán considerados materiales contaminados con PCB y por ende residuos peligrosos y sólo podrán ser eliminados a través de empresas de residuos autorizados.

**59. (Disposición):** Queda prohibida la disposición de líquidos dieléctrico u otros líquidos, residuos, etc. contaminados con PCB o que hayan estado en contacto con PCB cualquiera sea su concentración a través de:

- a) quema a cielo abierto,
- b) vertido a suelo,
- c) vertido a aguas superficiales, subterráneas, costeras, canalizaciones, red de saneamiento o cámaras sépticas y
- d) enterramiento.

**60. (Exportación):** La exportación de equipos, líquidos dieléctricos, residuos y otros que contengan PCB solo podrá ser realizada con el fin de proceder a su disposición final de forma ambientalmente adecuada y para tal fin se deberán cumplir los requerimientos establecidos por el Convenio de Basilea sobre el Transporte Transfronterizo de Residuos Peligrosos.

**61. (Declaración de eliminación):** Todo equipo, residuo, líquido dieléctrico u otros líquidos, etc. que haya sido eliminado, sólo podrá ser declarado como dispuesto mediante el correspondiente certificado de eliminación, emitido por la empresa que hace efectiva la disposición final.

## **SOBRE LAS SEGURIDAD OCUPACIONAL**

**62.** Las personas físicas o jurídicas públicas o privadas que posean o en cuyo predio se encuentren equipos, líquidos o residuos contaminados con PCB, deberán cumplir con la normativa en materia de salud y seguridad ocupacional en todas las actividades vinculadas a su operación, siendo responsables de:

- a) Adoptar y promover el uso de buenas prácticas establecidas para dichas actividades entre el personal encargado.
- b) Proveer al personal equipos de seguridad en calidad y cantidad.
- c) Implementar cursos de capacitación para el personal encargado de las mismas.
- d) Asegurar las condiciones higiénico sanitarias del local.
- e) Disponer de un local que cumpla con los requisitos establecidos de seguridad ambiental y ocupacional.
- f) Realizar los análisis médicos de control al personal encargado que se establezcan para tal fin.

**63.** Las operaciones de mantenimiento, tratamiento, disposición final, almacenamiento para reuso de equipos, residuos, líquidos, etc., contaminados con PCB, con personal capacitado propio o contratado, deberán realizarse en locales que cumplan con los requisitos establecidos y estar autorizados por las autoridades competentes. (Dirección Nacional de Medio Ambiente, IMM, Bomberos la que corresponda).

**64. (Señalización de locales):** Todo recinto, abierto o cerrado, que aloje equipos, líquidos, materiales o residuos que contengan PCB deberá estar claramente señalizado mediante cartelería, indicando la presencia de

PCB, la clase de peligro asociada y teléfonos de contacto en caso de emergencias.

## **SOBRE LAS PROHIBICIONES**

**65.** Queda prohibida/o:

- a) El ingreso al territorio nacional, bajo cualquier régimen, de líquidos dieléctricos y otros líquidos, transformadores, capacitores, u otro equipo comprendido en la lista del Anexo I, cualquiera sea su carácter, nuevo, usado u otro, cualquiera sea su finalidad, que contengan más de 2 ppm de PCB, TPC y UGILEC. Esto no aplica al tránsito/ transporte marítimo, salvo que la carga tenga como destino final Uruguay. Se deberá presentar certificado probatorio de la ausencia de PCB, TPC y UGILEC, emitido por un laboratorio certificado en estos análisis. Queda exceptuada de esta prohibición la importación de cantidades limitadas de estas sustancias destinadas a ser usadas a escala de laboratorio, como por ejemplo como patrón de referencia.
- b) La producción, para todo uso de líquidos dieléctricos y otros líquidos, con un contenido de PCB superior a 2 ppm.
- c) La compra, venta, donación u otro tipo de transferencia a terceros en el territorio nacional, de equipos, líquidos dieléctricos, productos, artículos, chatarra y otros, que contengan más de 50 ppm o que hayan estado en contacto con líquido dieléctrico u otros líquidos con más de 50 ppm de PCB, a excepción de los fines previstos para esta normativo.
- d) Diluir líquidos dieléctricos u otros líquidos conteniendo PCB como forma de evadir las obligaciones planteadas en esta normativa. Esto no se aplica a los procesos de dilución que formen parte del tratamiento para disposición final.
- e) Reutilizar partes provenientes de equipos eléctricos que hayan contenido PCB en cualquier concentración para otros fines diferentes a los de reparación de transformadores con más de 2 ppm de PCB.
- f) El uso o aplicación de líquidos dieléctricos y otros líquidos, equipos o productos conteniendo PCB en cualquier concentración en aplicaciones abiertas o semi abiertas (por ej.: tratamiento de cueros, sellantes, recubrimientos o agentes de control de polvos, etc.).

## **SOBRE LA INFORMACIÓN**

**66. (Información y contralor):** Los sujetos alcanzados por el presente decreto, quedan obligados a proporcionar a la Dirección Nacional de Medio Ambiente, para su uso con fines estadísticos y de contralor, los datos y demás informaciones de sus operaciones relativas a las actividades con equipos, líquidos dieléctricos, etc conteniendo PCB o que podrían contenerlo.

**67.** La Dirección Nacional de Medio Ambiente implementará un servicio público de información sobre el listado de poseedores de PCB, empresas de mantenimiento, instalaciones de almacenamiento y laboratorios.

**68. (Inventario):** A partir de los datos suministrados en las declaraciones juradas la Dirección Nacional de Medio Ambiente publicará anualmente, un inventario compilado de las existencias de equipos conteniendo PCB.

**69.** El Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente establecerá las características operativas de los registros, disponiendo la accesibilidad por medios electrónicos, salvo aquella información que hubiera sido declarado como reservada por el interesado, aspecto que deberán comunicar oportunamente a la Dirección Nacional de Medio Ambiente, que resolverá en definitiva

## **SOBRE LAS SANCIONES**

(Vacío)

**Part III – Response to Reviews**

**A - CONVENTION SECRETARIAT**

**B - OTHER IAS AND RELEVANT EXAS**

**C - STAP**

## Answer to UNEP comments and questions to the UNDP submission PIF Uruguay

DEVELOPMENT OF THE NATIONAL CAPACITIES FOR THE ENVIRONMENTAL SOUND MANAGEMENT OF PCB IN URUGUAY
ANSWER TO UNEP COMMENTS AND QUESTIONS TO THE UNDP SUBMISSION PIF URUGUAY
The executing partner name should be given in full detail and it's status introduced.
The National Administration through the Ministry of Housing, Use of the Land and the Environment, (MVOTMA) is exclusively responsible for the coordination of integrated environmental management by the State and public entities in general and it carries forth its environmental purposes through the National Directorate for the Environment (DINAMA) as its specialized executing branch. Therefore the Ministry commits DINAMA to be the executing agency for the Project.
Reference is made to the NIP, but it is not clearly described what is the dimension of the problem in Uruguay to be addressed by this project. There is no indication of the estimated number of PCB equipment, who holds them, concentrations, etc. It makes it difficult to understand what was the basis for calculation of the estimated cost of the project.
Since transformers manufactured with PCB are most easily identifiable using the plates, "pure" PCB would not be a big problem in UTE compared to cross contaminated. Considering the maintenance practices before the implementation of UTE's Environmental Management System, there would be an important number of cross contaminated equipment. UTE holds around 22,254 transformers, which are have not been assessed in search of PCB. A trade mark analysis shows that at least 1,343 out of them would be PCB transformers, the number of cross contaminated trafos is still unknown. According to the Project's last estimations, there would be around 1,400 tones of contaminated transformers property a hundred companies apart from UTE, that were constructed before 1979 (US prohibition) and 1985 (European prohibition). It is estimated that the majority of "pure" PCB will be in the private industry. Due to lack of institutional pressure the private industry was very reluctant with reporting. This will change with the project.
Demonstration activities will also comprise disposal. What is the basis of the financial calculation of the demonstration activities, i.e. how many transformers are going to be part of the demonstration project?
The project foresees demonstrative disposal activities regarding PCB-containing transformers for about 125 tons (4 USD/kg), this will comprise equipment from UTE and from other holders. The prices for final disposal are based on today's market prices in Europe. The trafos in the worst conditions will be prioritized to be included for disposal.
The PIF is not mentioning how the GEF intervention will enhance current activities on PCB management. It neither mentions what are the current efforts made by the country (private and public) regarding PCB management. We understand that UTE and the government are already doing some actions. How is the current UTE management plan complemented by the GEF intervention? This should be discussed in the incremental reasoning section more clearly.
Even if UTE is committed with the PCB issue their performance is subject to the budget availability. Thus there is a discontinuous approach that makes difficult to assure that the timetable set out by the Stockholm Convention can be achieved. During the Project an initial assessment of equipment will be done with the GEF support. This will allow their immediate phase out and disposal or alternatively the programming of their phase out and the corresponding funds allocation. Besides, UTE's experience with PCB management will be evaluated in light of national regulations. The activities regarding PCB-equipment outside UTE are scarce, therefore the impact of the Project in this sector will be high. To this end it is foreseen that the projects partly supports the disposal of equipment from this sector. Furthermore the Project will promote the achievement of better technical practices, and standards by means of guidelines allowing human and environmental risk reduction.
The Uruguayan Government through its National Directorate for Environment is working in cooperation with ministries and stakeholders to let the country comply with the timetable mandated by the Stockholm Convention. To this end a PCB specific legal framework is being developed to enforce it. Additionally a Monitoring Plan for UTE's equipment is being worked out. To support this activities a set of guidelines is being developed for the identification PCB equipment. Finally the experience at the national level gained in the field of PCB management during this Project will serve as a basis for the improvement of the management of. other hazardous wastes and chemicals.

It is not clear how the project will build upon the work already done in the international arena (E.g. Basel Convention Guidance).

Guidelines from the Basel Convention, Stockholm Convention, and other UN organizations related to chemicals will be a starting point for the development of the project. To this end advances made in the BC, SC and SAICM will be taken into consideration.

The proposal is suggesting that transformers with PCB contamination in the range of 50-2000 ppm are to be disposed of. Why is this range of PCB concentration chosen? Will alternative disposal options be considered?

The Project seeks to find national treatment or disposal alternatives for the "low" PCB equipment. An upper limit of 2,000 was set with indicative character to limit the range. Additionally it is expected that over 90 % of the cross contaminated oil transformers are within this range. Thus this activity will cover the majority of the PCB problem with transformers. An assessment considering equipment substitution and disposal (export) costs versus alternative treatment costs will help to establish the concentration upper limit in which the treatment is economically feasible. Different technological alternatives will be considered e.g. sodium technology. Pure PCB incineration will not be taken into account.

## Answer to the GEF Secretariat's Review

### DEVELOPMENT OF THE NATIONAL CAPACITIES FOR THE ENVIRONMENTAL SOUND MANAGEMENT OF PCB IN URUGUAY

#### ANSWER TO GEF SECRETARIAT'S REVIEW

##### 7. Is the global environmental benefit measurable?

*"The project will select and update interim storages to secure PCB containing equipment and wastes. This action, combined with the PCB disposal and site clean-up will generate global environmental benefits in the short term because PCBs will no longer leak into the environment. The destruction of PCBs will lead to immediately measurable and scalable benefits.*

*UNDP is urged to develop, including during the first year of implementation, indicators of GEB for the more "soft" interventions of PCB containment, including indicators relating to affected populations (in line with GEF-4 strategy indicators). Lasting global environmental benefits will depend upon the successful implementation of the national plan for PCB management whose ultimate goal will be the total phase out of PCB legacy in the country."*

As part of the PDF-A a technical proposal for legal framework was developed. This includes the obligatory declaration of equipments, oils and waste, their localization and state among others. This will serve as a valuable input for UNDP for the development of indicators to follow the process and establish evaluation criteria for health, safety and environment.

##### 8. Is the project design sound, its framework consistent sufficiently clear

Paragraph 1: *"The description of the PCB country profile is unclear, and the project document does not provide a breakdown for pure PCB oils, contaminated PCB oils and PCB contaminated equipment."*

Answer: During the NIP, a global estimation of transformers and capacitors was made by means of surveys sent to industries and other possible PCB-holders. The figures and estimation criteria are presented in Annex V – PCB findings. During this survey neither the PCB content nor its location of the individual transformers could be obtained. The survey concluded that the number of transformers is over 40.000.

Taking this into account and in view that the NIP's budget was slightly over USD 500,000, a more strategic use of the resources was decided. A comprehensive inventory would have costed over USD 1,600,000 (ca. USD 40/analysis) exclusively dedicated to the analysis of each piece of equipment, without including sampling, conditioning and transport costs, among other. This would have left no room nor resources for other activities but PCB. Moreover the local PCB analysis capacity is not enough (2 labs and 6 samples/week) and it would not have been cost-effective, since many samples should have been sent abroad.

The approach used enabled the country the development of the NIP studies in other areas like unintentional emissions, stockpiles, contaminated sites, awareness raising among others, as included in the NIP document.

In the scenario summarized above it was not possible to develop a comprehensive inventory due to lack of time and budget. However, we are fully aware that the inventory process is key and thus want to do it in a very strategic and comprehensive way during the MSP. To this end, a technical proposal for legal framework was drafted during the PDF-A, which establishes the obligatory declaration of equipment, oils and wastes containing PCB. Said is supported by chemical analyses and defines the scenario that assures the identification of them during the MSP implementation, while gives a framework for the inventory sustainability in time.

Field activities related to inventorying were not considered during the PDF-A phase due to the limited resources (USD 45,000) if compared to the inventorying task. However, advances were made for the identification and analysis of PCB-containing transformers, that led to the development of a statistical Monitoring Plan for UTE as it is the major transformer holder. Said is based on the UNIT 749-91 standard *"Sampling plans for the attribute inspection of isolated lots defined by quality limit (QL)"* (equivalent to ISO 2859/2-1985) This will support UTE's declaration and analysis scheme in the short term, the results of the Plan will be part of the MSP and will serve to the elaborate a much more comprehensive inventory in the medium term.

Paragraph 2: *“(...) whether separate components 4 and 5 are required.”*

Answer: We understand the comment but we believe that it is just a way to lay the activities out. To make our point clear let us say that activities in component 3 are for demonstration areas only. If we have a detailed inventory in the demonstration areas, we can do an estimation on the total quantity in the country. The time table will be elaborated during the project and will enter into the national laws, regulations and guidelines afterwards (otherwise it would not make any sense to do this activity).

These activities are low cost since they will be performed by the permanent staff considered in Outcome 1 using the products and inputs generated in the previous activities.

Paragraph 3: *“With respect to disposal operations, it is not clear what PCB categories would be treated locally and what would be exported.”*

Answer: During the NIP and the elaboration of the MSP proposal all participants realized that the major problem of PCB in Uruguay is with cross-contaminated oil transformers. Over 98 % of these cross-contaminated oil transformers show a PCB contamination between 50 and 2,000 ppm. Thus, it is foreseen to set the focus here. UTE will most probably invest in alternative technologies for solving that problem nationally. Activity 2.2.2 shows the study. The establishment of this technology is not foreseen in this MSP.

To solve this problem in Uruguay we need two different types of facilities, for oil (most probably a sodium reduction technology) and a treatment technology for the empty transformers. In the short term they will be exported. It is foreseen that 125 tones of equipment and oils are disposed, as mentioned both in Table – Key Indicators, assumptions and Risks and in the Project’s Logical Framework Matrix (see Activity 3.3.1.) To this end conservative international export prices were considered.

As foreseen in the project, the medium term scenario will depend upon the results of the alternative evaluation and their implementation at the national level (not considered under this project).

Paragraph 4: *“The project is to be completed in 2 years. This is most ambitious.”*

As stated in its title, the Project points at developing the basic national capacities required for the environmental sound management of PCBs according to the obligations and timeframe set by the Stockholm Convention. Therefore a group of key activities and demonstration projects were selected so that this 2 years period serves to start carrying out the action lines set in the NIP. We do not find the Project objectives ambitious nor its time span. Conversely they are conservative since the project will just deal with a relative small fraction of the equipment in the country.

The project does not intend to get rid of all the PCBs in the country, but sets the scenario and basic capacities to do it as mandated by the Convention.

Paragraph 5: *“(...) there is an issue with the way "site clean up" is presented. In itself, site remediation is of borderline eligibility. (...) It would help to have a better understanding of the type of contaminated site that the project would address - beyond a vague reference to the NIP, and what demonstration value there would be in conducting such a clean up.”*

Answer: In the formulation the wording "site remediation" was avoided as this is mostly understood as huge site cleaning processes, very cost intensive and related to bigger areas. We focus on specific circumstances when we talk about "site cleaning".

*Example:* A transformer is in operation and leaking. Then a sample is taken and analyzed: 200 ppm PCB. The transformer is close to a school. The owner decides to replace this transformer as soon as possible by a new PCB-free one. But the owner does not want to only replace the transformer, he wants a site cleaning. The soil (very often concrete) must be removed. That is not a long project, but must be done according to international standards and practices (tent around it, slightly vacuum, special workers protection etc.).

Finally that contaminated soil must be disposed of according to international standards and practices. It is NOT foreseen in the project to decontaminate former scrap yards which have been widely contaminated by PCB. These activities would require much higher expenses.



## 12. Has the cost-effectiveness sufficiently been demonstrated in project design?

*“Cost-effectiveness discussion is of a qualitative nature. This might be appropriate since there is relatively little in terms of data from other similar projects that can be used as benchmark. However one would have expected some information (or even estimation) on the cost of PCB disposal and site clean-up.”*

Export is the most cost-effective solution since no local treatment options are available. However, according to international prices, disposal costs vary on the type of waste and its contamination. Askarel transformers will cost about 1,000 USD per ton (for disposal only, no taxes, transport etc.), oil transformers cost about 700 USD per ton. Capacitors will cost about 1,600 USD per ton. Soil and other material will be similar to capacitors. The prices vary on many conditions. e.g. the copper (recovered from the transformers) prices are high and lead to lower disposal prices. Once the copper prices go down, the disposal prices will increase.

At the end of the project a pool of data regarding local costs for treatment, disposal and site clean-up will serve for benchmarking to countries in the region.

After the MSP this scenario may change as local treatment capacities may be available.

## 14. Does the project take into account potential major risks, including the consequences of climate change?

*“One important aspect that is lacking is a mention of human and environmental risks resulting from handling of PCBs. We would like to see those acknowledged, including how UNDP will ensure that appropriate safeguards are in place.”*

The whole project has been conceived for the reduction of risks for human health and the environment derived from the handling of PCBs. This is in accordance with the Stockholm Convention and the guiding principles established for the NIP-Uruguay (see paragraph 23) This reflected in the project's objective (paragraph 9 and 71), in its outcomes (paragraph 14 and 75) in the project design (paragraph 47 and 50). Additionally the activities proposed in this MSP lead to the risk reduction during the life cycle of equipment and oils.

## 17. Is the GEF funding level of project management budget appropriate?

*“Project management (around 7% of the GEF grant) appears appropriate - but only if it is all the "project management. We would like to better understand how that relates to outcome 1 ("project set up and monitoring"), in particular the "permanent staff for the whole project" for \$89,000. Is that not also project management?”*

Apart from the costs derived from workshops, and Monitoring and Evaluation (M&E) (USD 35,000) the costs of Outcome 1 (1.1) cover a communications expert (USD 8,000) and two permanent consultants (USD 44,000) dedicated to technical support, which were not considered as project management as they are just for technical support. This is reflected in Annex II - Total Budget Plan.

Even if M&E costs are included, Project Management costs are around 10%.

## 18. Is the GEF funding level of other cost items (consultants, travel, etc.) appropriate?

Paragraph 3: *“Travel costs attributed to the GEF are low @\$11,000”*

This only includes transport (not expenses) for international consultants. The Logical Framework Matrix shows those activities which require international consultancy. The number of travels has been considered in the time table so as to optimize them.

Paragraph 4: *“We do not understand why under project output 2.2.1: GEF is requested to pay \$ 101,000 for the development of analytical capacity while technical and analytical capacities already exist within UTE (which owns 95% of the transformers). On top of that, under output 3.1.2, \$ 37,000 is requested for the identification of PCB-containing equipment, PCB waste and sites contaminated with PCB as well as upgrading of laboratory capacity.*

*We believe that upgrading the UTE analytical equipment and strengthening the technical capacities of this company for the management of PCB will be much more cost effective.”*

The country lacks the analytical capacities required for PCB management. Even within UTE, the analytical capacities are scarce and limited to a few screening kits and if chromatographic verification is required, samples are sent to private laboratories in the country or abroad. The poor advance made in the field of inventories is mostly due to this fact. That is why we need cheaper technologies which are more flexible. We got informed about the Dexsil L 2000 Analyzer and think that this is very good for us as we can move it to storages and have fast results. The analysis by L 2000 is good for oil transformers and accepted by US-EPA. For soil analysis we need additionally the GC for the identification of matrix effects in the soil.

Regarding the USD 101,000 for 2.2.1, they correspond to screening-kit apparatus, laboratory upgrading in relation to PCB analysis in view of the requirements and the expected operation scale, analysts, reagents for both screening (kits) and GC analysis of soil and oils.

The USD 37,000 included in 3.1.2. for risk reduction for the environmental and health consider include required personal protective equipment, elements required for sampling and sample conditioning as well as transport to the sampling points.

**20. Are the confirmed co-financing amounts adequate for each project component?**

*“The overall co-financing ratio, of 1:1, is on the low side. In particular, one would expect the component on demonstration of phase-out, collection, and disposal, to be co-financed at a much higher level. “*

The co-financing for the project reflects the country’s budget/ funding availability to face the PCB issue by itself. Therefore it is key to succeed in this field to have external support.

However, it is expected that taking into consideration the results of the treatments evaluation, UTE is able to purchase an equipment for oil treatment. As a result of the new legal requirements new private investments will arise to give interim storage service for holders other than UTE. Finally, it is expected that during the project implementation equipment will be managed, stored, treated and disposed at the holder’s charge.

The technical proposal for legal framework for PCB management as of 12<sup>th</sup> December 2007 is included. It is worth mentioning that this is a product committed in the PDF-A and that it is foreseen that it enters into force before the MSP is implemented.

**21. Does the proposal include a budgeted ME Plan that monitors and measures results with indicators and targets?**

*“The M&E plan needs strengthening to include a clear table showing who does what and when. Moreover, it should be budgeted. It would recommend including a specific M&E plan annex so that it can be found easily.”*

Monitoring and Evaluation (M&E) has been included in section F, paragraphs 155 to 164 and is considered separately in Annex I - Tentative Work Plan. During the field missions for technical support (See Logical Framework Matrix), the CTA will also monitor the development of the project implementation and inform UNDP. Monitoring will be reviewed every four months, mid term and final review by external consultants are included. The activity is assigned USD 35,000 included in the costs of Outcome 1 (1.1) as described in paragraph 163.

<b>Monitoring &amp; Evaluation Plan</b>		
<b>Action</b>	<b>Responsible actor</b>	<b>Budget (estimated, USD)</b>
Periodic monitoring and Evaluation according to UNDP/GEF rules and regulations	MVOTMA and UNDP	Included in management costs and UNDP fees
Mid Term evaluation	External evaluator	8,000
Final Term evaluation	External evaluator	15,000
Monitoring during field mission (minimum 3)	Chief technical advisor and UNDP	12,000
Two field missions to assess results	Regional Technical advisor UNDP-GEF	UNDP GEF
<b>Total</b>		<b>35,000</b>

## Monitoring, Reporting and Evaluation Workplan

DURATION OF PROJECT																									
Activities		PROJECT MONTHS																							
Completion of major activities		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Monitoring, reporting and evaluation activities																									
Monitoring	Periodic Project Review Meetings (Project Management and Stakeholders)																								
	Periodic monitoring and evaluation according to UNDP/GEF rules (MVOTMA & UNDP Montevideo)																								
	Monitoring during Field Mission (CTA & UNDP Montevideo – minimum 3)																								
	Two Field Missions to Assess Results (UNDP Regional Advisor)																								
Reporting	Inception Workshop (Included in Activity 1.2) and Project Inception Report																								
	Quartely reports produced by NPC																								
	Project Implementation Review (PIR) and Annual Project Report (APR)																								
Audits & Evaluation	Mid Term Evaluation																								
	Final Term Evaluation																								