REQUEST FOR CEO ENDORSEMENT/APPROVAL

PROJECT TYPE: Medium-sized Project
THE GEF TRUST FUND

Submission Date: 30 September 2010

PART I: PROJECT INFORMATION

GEFSEC PROJECT ID: 4124
GEF AGENCY PROJECT ID: 4095
COUNTRY(IES): The Hashemite Kingdom of Jordan
PROJECT TITLE: Implementation of Phase I of a comprehensive PCB management system in the Hashemite Kingdom of Jordan
GEF AGENCY(IES): UNDP
OTHER EXECUTING PARTNER(S):
GEF FOCAL AREA(s): Persistent Organic Pollutants
GEF-4 STRATEGIC PROGRAM(s): POPs SP 1 and SP 2
NAME OF PARENT PROGRAM/UMBRELLA PROJECT: N/A

Expected Calendar (mm/dd/yy)	
Milestones	**Dates**
Work Program (for FSPs only)	
Agency Approval date	31/11/2010
Implementation Start	30/12/2010
Mid-term Evaluation (if planned)	30/06/2012
Project Closing Date	31/07/2013

A. PROJECT FRAMEWORK (Expand table as necessary)

Project Objective: Environmentally sound management and disposal of PCB in the Hashemite Kingdom of Jordan

Project Components	**Indicate whether Investment, TA, or STA[2]**	**Expected Outcomes**	**Expected Outputs**	**GEF Financing[1]**		**Co-Financing[1]**		**Total ($)** c=a+ b
				($) a	%	($) b	%	
1. Regulatory and administrative strengthening for PCB management	TA	1. Laws, regulations and guidelines for PCB management developed 2. Sustained and targeted awareness raising on various levels	1.1 PCB laws, regulations and guidelines are upgraded to international standards (hazardous waste classification, registration, labeling and status reporting of PCBs, including PCB handling activities). 1.2 Country-wide awareness of existing laws, regulations and guidelines, especially at stakeholder level.	65,000	22	225,000	78	290,000
2. Improving PCB inventory and technical capacity for Environmentally Sound Management (ESM) of PCB equipment and materials	TA	1. Development of PCB detection and analytical capacity through equipment/ tools and specialized training for analytical surveys 2. Development of ESM system and specialized training for PCB experts to promote the system's applicability in	2.1 National capacity to analyze PCB suspected substances is improved; 2.2. Extended sampling and testing of PCB is ensured and completed with regular reporting to the central PCB database; 2.3 ESM system is developed and approved at the national level for mandatory application 2.4 Through specialized trainings, the national	350,000	27	930,000	73	1,280,000

		practice 3. Identification and setup of storage facilities for proper interim PCB containment	capacity for secure management of PCBs is improved and sustained. Owners of PCB equipment apply ESM guidelines for safe handling of these devices. 2.5 Regional storage facilities have been identified, assessed, upgraded and put into operation with relevant training of storage personnel					
3. Demonstration projects for testing ESM system and disposal of PCB containing equipment	TA	1. Development of capacity to securely transport, handle, package, securely stockpile PCB wastes and disposal of stockpiles (pure and contaminated)	3.1 Up to 40 tons of "pure" PCB devices (transformer and capacitors) will be disposed of in EMS manner as a priority PCB stockpile; 3.2 100 tons of PCB contaminated material will be disposed of ESM manner	400,000	35	750,000	65	1,150,000
4. Monitoring, learning, adaptive feedback, outreach and evaluation	TA	1. Project's results are evaluated, used in adaptive management and replicated	4.1 M&E and adaptive management are applied to provide feedback to the project coordination process to capitalize on the project needs; 4.2 Lessons learned and best practices are accumulated, summarized and replicated at the country level.	40,000	100	-	-	40,000
Project management				95,000	26	275,000	74	370,000
Total Project Costs				A950,000	30	B2,180,000	70	3,130,000

[1] List the $ by project components. The percentage is the share of GEF and Co-financing respectively of the total amount for the component.

[2] TA = Technical Assistance; STA = Scientific & Technical Analysis.

B. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT (expand the table line items as necessary)

Name of Co-financier (source)	*Classification*	*Type*	*Project*	*%**
Ministry of Environment	Government	Cash	50,000	
	Government	In-kind	300,000	16%
NEPCO	Government	Cash	100,000	
	Government	In-kind	200,000	14%
EDCO	Private	Cash	300,000	
		In-kind	400,000	32%
IDECO	Private	Cash	300,000	
		In-kind	300,000	28%
Royal Oil Refinery	Government	Cash	50,000	
		In-kind	30,000	3%
UNDP	UN	Cash	150,000	7%
Total Co-financing			2,180,000	100%

* Percentage of each co-financier's contribution at CEO endorsement to total co-financing.

C. FINANCING PLAN SUMMARY FOR THE PROJECT ($)

	Project Preparation a	*Project B*	*Total c = a + b*	*Agency Fee*	*For comparison: GEF and Co-financing at PIF*
GEF financing	50,000	950,000	1,000,000	100,000	1,000,000
Co-financing	50,000	2,180,000	2,230,000		1,860,000
Total	100,000	3,130,000	3,230,000		2,860,000

D. GEF RESOURCES REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES)[1]

GEF Agency	*Focal Area*	*Country Name/ Global*	*(in $)*		
			Project (a)	*Agency Fee (b)[2]*	*Total c=a+b*
(select)	(select)				
Total GEF Resources					

[1] No need to provide information for this table if it is a single focal area, single country and single GEF Agency project.

[2] Relates to the project and any previous project preparation funding that have been provided and for which no Agency fee has been requested from Trustee.

E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	*Estimated person weeks*	*GEF amount($)*	*Co-financing ($)*	*Project total ($)*
Local consultants*	902	157,850	125,000	282,850
International consultants*	28	98,000	0	98,000
Total	930	255,850	125,000	380,850

* Details to be provided in Annex C.

F. PROJECT MANAGEMENT BUDGET/COST

Cost Items	*Total Estimated person weeks/months*	*GEF amount ($)*	*Co-financing ($)*	*Project total ($)*
Local consultants*	464	75,000	-	75,000
International consultants*	-	-	-	-
Office facilities, equipment, vehicles and communications*		10,000	50,000	60,000
Travel*		10,000	25,000	35,000
Others**		-	200,000	200,000
Total		**95,000**	**275,000**	**370,000**

* Details to be provided in Annex C.

** Other costs co-financed by the government are in-kind staff and management costs associated with supervision and liaison with the project along with administrative costs associated with the Working Group and Project Board.

G. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? yes ☐ no ☒
(If non-grant instruments are used, provide in Annex E an indicative calendar of expected reflows to your agency and to the GEF Trust Fund).

H. DESCRIBE THE BUDGETED M &E PLAN:

The project will be monitored through the following M& E activities. The M& E budget is provided in the table below.

Project start:

A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

The Inception Workshop should address a number of key issues including:

a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO as executing agency, the Ministry of Environment as implementing and executing agency and the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
b) The GEF-4 and as appropriate GEF-5 Focal Area Strategy inclusive of targets will be presented and linked to project outcomes, outputs and indicators.
c) Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
d) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
e) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
f) Establish a project steering committee (PSC) and define its role in the project.

g) Plan and schedule PSC meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first PSC meeting should be held within the first 6 months following the inception workshop.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Managment Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (01 January to 31 December). The APR/PIR combines both UNDP and GEF reporting requirements.

  The APR/PIR includes, but is not limited to, reporting on the following:

  - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
  - Project outputs delivered per project outcome (annual).
  - Lesson learned/good practice.
  - AWP and other expenditure reports
  - Risk and adaptive management
  - ATLAS QPR
  - Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits:

UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. The international expert undertaking independent monitoring, particularly in relation to environmental safeguards will be part of these visits. A Field Visit Report will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and PSC members.

Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (June 2012). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project:

An independent Final Evaluation will take place three months prior to the final PSC meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. This will include input from the Independent expert undertaking environmental safeguards monitoring on the overall environmental performance achieved in relation to PCB storage and disposal activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing:

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

M&E Work Plan and budget

Type of M&E activity	Responsible Parties	Budget US$	Time frame
Inception Workshop and Report	▪ Project Manager and team ▪ UNDP CO, UNDP GEF ▪ International Technical Support/Safeguards Expert	Staff time	Within first two months of project start up
Measurement of Means of Verification of project results.	▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	None	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by Project Manager ▪ Project team	None	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project manager and team ▪ UNDP CO ▪ UNDP PTA/RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project manager and team	None	Quarterly
Mid-term Evaluation	▪ Project manager and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 20,000	At the mid-point of project implementation.
Final Evaluation	▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 20,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project manager and team ▪ UNDP CO ▪ local consultant ▪ International Technical Support/Safeguards Expert	Staff time	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager and team	None (cost in PM Budget)	Yearly
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US$ 40,000[1]	

[1] Costs only for International Consultant supporting M&E as part of Technical support/safeguards monitoring. It is estimated that additional US$20,000 from project management salaries will be devoted to M&E activities. Audit costs in the Project Management component are US$5,000.

PART II: PROJECT JUSTIFICATION:

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:

Issue background and baseline:

Polychlorinated Biphenyls (PCBs) are a class of synthetic organic chemicals and are considered Persistent Organic Pollutants (POPs). Since 1930 PCBs were used for a variety of industrial uses (mainly as dielectric fluids in capacitors and transformers but also as flame retardants, ink solvents, plasticizers, etc.) because of their chemical stability and very good electrical properties. PCBs are fire resistance, have a low electrical conductivity, high resistance to thermal breakdown and a high resistance to oxidants and other chemicals. When researches in the 1970s found out that these characteristic that made them a popular additive represented a serious threat to human health and the environment, their production was gradually stopped. PCBs are considered to be immunotoxic and affect reproduction. Adverse effects associated to the exposure of PCBs are damage to the immune system, liver, skin, reproductive system, gastrointestinal tract and thyroid gland[2].

In 1980-90s, the manufacture of PCBs was gradually stopped, and countries started introducing regulations to control the handling and ensure safe management of PCB materials. Around 1.7 million tonnes of PCBs were produced between 1929 and 1989 and a lot of the equipment containing PCBs is still in use somewhere or stocked awaiting final disposal. As PCBs once released into the environment do not break down but travel over long distances and continue to pose health risks to humans, it is important to remove them from use and destroy existing stockpiles. Existing PCBs can be destroyed through the breaking of their molecular bonds by the input of either chemical or thermal energy. The most common method is high temperature incineration, though other non-combustion methods like declorination exist[3].

The world community had initiated global efforts to regulate and control POPs, and in 2001 the Stockholm Convention on Persistent Organic Pollutants[4] was adopted which then entered into force in 2004. PCBs were listed in the initial register of twelve (12) POPs and have been since then controlled by the Convention. All parties which acceded or ratified the Convention assumed specific obligations to ensure safe POPs management.

The Hashemite Kingdom of Jordan signed the Convention in 2002 and ratified it in 2004. By becoming a party, the Government had taken on the mandatory obligations to implement the Convention and the control measures identified in its guidance text.

The first step towards meeting the obligations was the development and formulation of the National Implementation Plan (NIP) for Stockholm Convention. The NIP[5] was prepared and transmitted to the Stockholm Convention Secretariat in December 2006.

The requirement to deal with PCBs has been identified in the NIP of Jordan. It was reported that no PCBs were ever produced in the country or re-exported, and that some of the old electrical equipment could contain PCBs. The PCB equipment was in fact an imported product originating from other countries. The two main chemical which were suspected to be in the equipment were limited to Askarel and Sovtol. The survey which was carried out at that time was focused on transformer type of equipment due to time limitations, and thus no study over the other types of equipment was performed – capacitors and circuit breakers were not covered by the survey. Resulting from the initial study, the NIP had reported that PCB materials have been found to be in power electrical equipment such as transformers and in oil reserve. The primary locations for transformers were the Al-Husain Power Plant (5 pieces of equipment amounting to around 11 tons of PCB oil and 1.5 tons of PCB oil stored at the facility) and the Irbid

[2] http://chm.pops.int/Programmes/PCBs/Overview/tabid/273/language/en-US/Default.aspx
[3] http://chm.pops.int/Programmes/PCBs/Overview/tabid/273/language/en-US/Default.aspx
[4] http://chm.pops.int/Portals/0/Repository/convention_text/UNEP-POPS-COP-CONVTEXT-FULL.English.PDF
[5] http://chm.pops.int/Countries/National%20Implementation/tabid/253/language/en-US/Default.aspx

Electricity Distribution Company (4 pieces of transformers showed PCB contamination with 1.5 tons of PCB containing oil estimated). The former site accounted for 90% of PCB materials available in the country.

During the NIP stage, the lessons learned from the field surveys were that it was rather difficult to obtain required information on electrical equipment in the utility and industrial sectors since no accurate documentation on the PCB equipment was available, specifically for the equipment procured and installed prior to 1980. The NIP further proposed urgent actions on a comprehensive and detailed survey of the oil electric equipment across the electricity distribution companies to create a better picture on the PCB material inventory available in the country. The NIP also listed regulatory measures which were in place in 2005 to initiate the control over the PCB management. There have been no regulations which would control the handling of PCBs and their safe disposal; however, a ban on import of import and use of oil with PCB content of above 0.005% PCB by weight was introduced by the Ministry of Health in 2005. It was also concluded, after the NIP initial studies were completed, that the lack of laboratory capacity to identify PCBs was one of the main barriers for completing the PCB inventory, and no designated storage places for PCB materials which would meet internationally established standards were identified in Jordan. The low level awareness among a significant number of stakeholders was detected during the NIP formulation, and all these aspects were summarized in the NIP Action Plan which was adopted in June 2006. To date, the NIP has received limited follow-up implementation due to the need for international technical assistance.

In 2010, however, the GEF, through UNDP, had provided project formulation assistance in order to re-visit the NIP data on the PCB issue, perform additional industry contacts and inventory cross-checks in order to a technical assistance package to install internationally recognized and viable system for sage PCB management in Jordan.

The PPG phase has allowed contacting and visiting several major owners (users) of power equipment in the country. Among them are:

(-) All entities of the utility sector (IDECO, EDCO, NEPCO, JEPCO, CEGCO) – though not all locations;

(-) The national oil refinery company,

(-) Two mines of the phosphate industries,

(-) The potash mining company at the Dead Sea area,

(-) The international Queen Alia Airport at the city of Amman, and

(-) The LaFarge subsidiary at Fuheis.

Resulting from this, the expert team had clarified the situation with PCB equipment use:

Transformers:

(-) Al-Husain Power Plant. Nine (9) pieces of pure PCB transformers were detected in operation at the power plant located near the capital city with a total weight of approximately 30 tons;

(-) Central Oil Refinery. With forty-five (45) transformers identified at the oil refinery, eight (8) transformers were checked by GC and six (6) transformers were found to be PCB cross-contaminated with levels above 50 ppm. The approximate weight of the PCB contaminated oil is 6 tons. The site is suspected to have around 30 tons of PCB contaminated oil after the complete check which will be

performed during the project implementation. Poor maintenance practices were documented at the oil refinery which suggests significant cross-contamination of existing equipment fleet;

(-) IDECO utility. The company has planned the repair of 100 old transformer units and scrapping of 20 pieces of oil filled transformers. Due to the old age of the equipment (produced before 1985), it is assumed that 60 transformers may contain PCB oil above 50 ppm, which may result in up to 30 tons of PCB contaminated oil; Additionally, IDECO's equipment storage facility (Hosha) contains up to 300 pieces of old models of oil transformers, and though no checks have been performed due to the size of inventory (the test would have consumed the main portion of PPG budget with the current cost of US$ 50 per sample per test) at both IDECO and Hosha sites, it is assumed that 10% of the equipment can be cross-contaminated with PCB oil resulting in additional up to 15 tons of PCB contaminated oil;

(-) JEPCO utility. JEPCO's equipment storage facility (Zarqa) has reported 250 pieces of oil transformers ready for scrapping with some being detected to be seriously leaking into the floor. Due to aged equipment, the project team estimated that around 10% of this old equipment can be cross-contaminated constituting up to 15 tons of PCB contaminated oil.

(-) Though CEGCO was referred in the NIP as having PCB transformers, the results of the PPG phase did not show any quantities of such equipment at this utility company. Oil tests must be further performed at the company;

Capacitors:

A number of PCB filled and impregnated capacitors were identified too:

(-) LaFarge Cement Plant. Twenty six (26) pieces of PCB filled capacitors in capacitor banks were found at the cement factory (central site). The total confirmed weight of equipment is up to 2 tons. The company has agreed to participate in the project by conducting additional inventory of PCB capacitors at its subsidiary sites. At the moment of PPG finalization, no data has been yet received, though the estimated total weight of PCB equipment with new data might reach 4 tons;

(-) Central Oil Refinery. Forty (40) pieces of PCB impregnated capacitors have been identified with a total weight of approximately 1.5 tons of PCB equipment;

(-) Phosphate company. One hundred (100) pieces of PCB filled capacitors were found in operation at the company's premises accounting for approximately 6 tons of PCB equipment.

(-) Additional six (6) units of PCB filled capacitors were detected at JEPCO's utility substation with approximate total weight up to half a ton (500 kg) of PCB equipment.

Ballasts in fluorescent light bulbs:

During site visits to metal scrap yards, it was also identified that small electrical devices such as ballasts in fluorescent light bulbs also contained PCBs. The quantities determined are small.

During the survey, several communication barriers were experienced with potential PCB equipment users. For instance, not all utility companies have responded to the questionnaires and did not provide data during site visits. Out of 50 substations total available in the country and controlled by the utility companies, only one has reported required information. Additionally, the Jordan fertilizer factory has not provided feedback on its inventory of PCB capacitors as compared to the Phosphate company which

works in the similar business field. Such information is considered as forthcoming during the project implementation.

The cross-check of the equipment produced before 1985 was performed through existing inventories which were requested from a number of users of power equipment identified in the country. Limited or no oil check has been performed due to insufficient analytical capability (and, lack of knowledge on existing GC methodologies for PCB oil tests), and large oil equipment inventories available at several users of power equipment (the test would have consumed the main portion of PPG budget with the current cost of US$ 50 per sample per test). The remaining fleet of power equipment produced after that year was targeted for future regular cross-checks during the project implementation to understand the scope of potential equipment cross-contamination due to maintenance. It is presently assumed that the total of 15,000 units of oil transformers must be checked for such reason. Further, it is assumed that around 15% may be PCB-contaminated at levels between 50 and around 1,000 ppm. It is expected that only very few pieces of equipment may have higher levels of PCB, and the rest will be free of PCB materials.

With regard to capacitors, the investigation through direct contacts with a large number of utility companies had concluded that these equipment types were mainly used in the major industries, but seldom in the utility sector. Therefore the inventory will be more in the industrial sites, though no large quantities of capacitors is expected to be found during the full inventory process. During site visits, it was further documented that there is little knowledge about the PCB equipment. During one of the official visits by the international technical expert, one company (oil refinery) has been documented to be in possession of operational PCB capacitor equipment (capacitor banks). However, no data was provided by such company to the project team on the existence of PCB equipment within its boundaries before a technical support visit was arranged.

The use of PCBs in open applications has not been well researched and is not known, but the assumption is made that their use in caulking material in huge buildings is very low as bigger buildings were mainly erected after 1990. Nevertheless, further statistical studies for these sources of PCBs will be undertaken during the project execution.

The project team has also identified the existence of small ballast capacitors filled or impregnated with PCBs. Such stockpiles were identified at metal scrap yards in several sites (e.g. Aqaba authority in the south of the country).

During the NIP formulation and afterwards, several gaps in the legal framework have been identified which the project intends to resolve through legislation improvement and capacity building. There has been detected a limited progress in updating the hazardous waste legislation on the country which would address the PCB safe handling aspects. Though the import and use of industrial oil with PCB content of above 0.005% by weight was in place, no mandatory legislation to classify, register, label and inspect the PCB equipment was drafted for adoption. There are no mandatory requirements to check operational transformers for the PCBs content. No such check is also performed with regard to old equipment facing disconnect from the grid and onwards scrapping for metals nor with regard to transformers for any kind subjected to major repair.

Environmentally safe management standards for handling, storage and service of PCB equipment were found to be absent and require further elaboration and appropriate formulation suing international benchmarks. The preparatory project has identified the lack of proper maintenance and storage standards for disconnected or operational electrical equipment with any type of coolant. For instance, PCB equipment found at the Al-Husain Power Plant has been seen to be leaking to the room floor area with some basic tray installed to capture the PCB fluid after it was recognized that the equipment could contain PCB. The maintenance and repair of oil transformers is carried out without knowledge about PCB associated risks and potential cross-contamination of clean equipment with PCB materials. Given this baseline scenario, it is expected that the contamination of new equipment will commonly take place.

A very low awareness level on PCB equipment and acceptable maintenance practices has been documented during site visits and interviews with potential owners of PCB equipment. During the PPG

phase, the maintenance and repair departments of the utility sector were informed about such risks and the need for informed action.

It has been identified that several companies plan for equipment modernization. For instance, IDECO (Electricity Distribution Company in the northern part of Jordan) expects to test 300 old models of oil transformers for PCB content prior to scrapping. The same exercise is now planned at storage locations belonging to the utility sector, as well at other utility companies apart from IDECO. Due to enhanced awareness on the PCB risks, the project counterparts are presently concerned with the destiny of such equipment in the scrap dealer sector.

During the investigation of the PCB analytical capability present in the country, the project team has identified that no checks for PCB content has been ever performed in the country and the existing lab facilities located at research centers possess sensitive GC laboratory equipment for hazardous chemicals test in the environment which is prohibitively expensive for PCB oil sampling. The use of GC equipment outside of the research centers, such as at the Central Oil Refinery, is limited due to lack of skills on the use of PCB related methodologies. Such capacity has significantly limited the ability to perform accurate inventory of PCB equipment in the country.

Overall, the found and estimated quantity of pure PCB in Jordan is low and any national disposal facility is not economically viable. The equipment cross-contamination continues and represents the main barrier which will have to be resolved by the project through the enhanced and comprehensive capacity building in the country and at the enterprise level. All pure PCB material will be subject to export to licensed facilities abroad for final environmentally sound disposal. For the low contaminated materials, experiences in developed countries show that oil change in transformers with 1000 ppm contamination level may be a viable domestic option. Low level PCBs concentrations could be decontaminated by oil change (replacement of PCB oil with PCB-free oil) with the follow-up checks after 6 months of equipment operation. After such operations the PCB concentrations would stay under 50 ppm level until the end of equipment's useful life. This methodology could be the most economic solution for low level contamination.

At the final stakeholder workshop held on July 29, 2010 organized for major potential owners of PCB equipment (utility sector and major industries), His Excellency, the Minister of Environment of the Hashemite Kingdom of Jordan stated that the currently prepared project is highly appreciated in order to go for a cleaner environment.

Key Barriers:

As described above, there are substantial gaps on the way to install the well founded and operational system for safe PCB handling in the Hashemite Kingdom of Jordan. The main barrier in changing the situation to be aligned with existing international standards is the limited national capacity, lack of qualified technical advice on the modern approaches which would be essential at the first stages aimed at safe PCB management in the country and no adequate control measures, low awareness level on PCB associated risks and limited national resources.

The main barriers are summarized in the list below. These will be targeted by the project:

- *Limited legislation which does allow comprehensive regulation of the PCB management:* The absence of basic regulatory instruments on the (1) inventory, labelling and reporting of PCB equipment stocks; (2) environmentally sound standards of PCB management; (3) requirements for environmentally sound storage and final disposal, requires substantial technical assistance and experience sharing.
- *Insufficient sectors wide data on the PCB inventory/stockpiles*: There have been difficulties experienced with PCB data collection during the PPG stages which require additional support to

create a comprehensive, reliable and functional database to provide information for the decision making. This is linked with the regulatory gaps no mandatory registration and reporting of the PCB equipment is in place.

- *Limitations in the PCB analytical capability:* Despite the existence of some analytical capability in the country, there were gaps identified with regard to the GC protocols and procedures to test PCB oil samples. The capacity is mostly stationary with lack of knowledge on the modern PCB protocols, sample testing is too expensive and the lack of mobile test units is seen as a limitation to be able to cover large inventories of oil electric equipment. There is an urgent need to provide appropriate training for GC analysts as well to supply portable PCB detection equipment for the existing electricity distribution and industrial companies to complete the PCB equipment inventory.
- *Low level awareness on the PCB associated risks and dangers:* Though certain information flow to the stakeholders has been ensured through the PPG phase, there still remains an insufficient level of knowledge on the PCB issues, and environmental and health risks among the PCB equipment holders and regulatory authorities;
- *Limited capacity and knowledge in maintenance procedures for PCB containing equipment*: At the enterprise level, very little knowledge on the PCB associated risks and proper PCB handling was detected. Disconnected oil-based equipment goes for scrapping to metal dealers without PCB tests which is not sustainable. Equipment that is in operation and contains PCBs is not managed with caution and knowledge to avoid releases of PCB and limit exposure to workers and environment. Equipment cross-contamination continues and poses risks of expanding the PCB inventory and threatens the environment. Capacity building is a must at the enterprise level to ensure PCB equipment is managed in an environmentally sound manner.
- *Limited infrastructure to store the PCB materials for their sound management in line with international standards:* In the country, there is no established capacity for the safe storage of PCB materials. Such capacity is required to ensure that the environmentally sound PCB management is effectively implemented starting with the PCB identification through to their storage and disposal.
- *Lack of experience at the country level for PCB disposal:* The estimated quantity of pure PCB in Jordan is low, any national disposal facility is economically not viable. All pure PCB material will be subject to export to licensed facilities abroad for final environmentally sound disposal. For the low contaminated materials, experiences in developed countries show that oil change in transformers with 1000 ppm contamination level may be a viable domestic option. Therefore, the project should strive to increase the technical capacity of the country to manage the disposal of PCB waste through the use of the Basel convention instruments.

GEF Project Scenario for overcoming the barriers:

The developed GEF project scenario will provide necessary tools and increase technical capacity of the country to meet the requirements with respect to the Stockholm Convention with the overall objective of safeguarding the environment and health from PCB impacts at the national and global levels. A comprehensive system for environmentally sound management and disposal of PCB materials will be put in place, including up-to-date and functional PCB regulatory standards aligned with internationally recommended benchmarks. The system will allow the required capacity building at the national level with a demonstration element targeting PCB material disposal abroad. The demo disposal component envisaged in the project will further re-enforce the awareness raising effect to ensure that industrial sector is fully aware of the Government requirements and approaches for safe PCB management through its ultimate disposal.

The project was formulated to address the identified principal barriers as outlined in the previous section. In terms of its design, it follows the structure proposed in the originally approved PIF with baseline information collected through the PPG work and any necessary precision of the PIF's scope to reflect the currently required interventions. The following paragraphs list the five main project components included in the Project Framework:

Component 1: Regulatory and administrative strengthening for PCB management. The component aims at the formulation of relevant laws and regulatory measures for effective control of PCB handling in the country: hazardous waste classification, equipment registration, labeling and status reporting of PCBs. Through quality training and information dissemination workshops, the component will achieve better awareness level on the regulatory system and its requirements.

Component 2: Improving PCB inventory and technical capacity for Environmentally Sound Management (ESM) of PCB equipment and materials. Importantly, this component will address the barriers associated with the incomplete knowledge on the PCB inventory in the country through stimulating expanded sampling and testing of equipment oil. It will be aligned with removing limitations identified in the PCB analytical capacity sector, and specifically in the field, at the electric equipment owners. The component will further help in establishing a functional PCB equipment database. Further, it will develop ESM system for the direct application by enterprises with specialized trainings in the proper handling of PCB equipment. The in-house capacity of the private/public sector companies will be improved to prepare them to manage PCB equipment safely and minimize PCB releases, human exposure and equipment cross-contamination. Finally, it will address the highly recommended need for infrastructure upgrade to have proper interim storages which will serve the project needs within its timeframe and beyond prior to final PCB disposal abroad. Existing storage capacities were assessed to fall short of the requirement for safety and environmentally sound design.

Component 3: Demonstration projects for testing ESM system and disposal of PCB containing equipment. This element has been designed to test the feasibility and reliability of all the previously described project components performing together in a holistic PCB management system for meeting practical suitability of the project's approach. The component will help dispose of 40 tons priority PCB equipment and 100 tons of PCB contaminated materials through disposal in licensed disposal facilities abroad.

Component 4: Monitoring, learning, adaptive feedback, outreach and evaluation

A more detailed description of the project components follows this paragraph along with the related sub-components which were aligned with the outcomes and outputs as provided in Annex A.

Component 1: Regulatory and administrative strengthening for PCB management (USD 225,000 Co-financing, USD 65,000 GEF):

The component aims at the formulation of relevant laws and regulatory measure for effective control of PCB handling in the country. It will address the gaps between the existing baseline situation with no laws, regulations and guidelines for safe PCB handling and the internationally recommended benchmarks developed by the Stockholm and Basel Convention Secretariats. The Hashemite Kingdom of Jordan is committed to formulate and implement PCB regulatory measures that meet international standards and practices. During such exercise, a comprehensive analysis of the missing regulatory instruments will be carried out to match the existing national regime with acceptable international benchmarks. Guidance materials on the technical and management aspects of PCB handling will be formulated and disseminated to the project stakeholders. The law enforcement system will be seen as essential part of the regulatory system improvement. The component will also ensure the study of the spheres of responsibilities in the public sector which will then be aligned with the existing Government functions across the line

ministries. If applicable, such measures will be extended to cover other toxic and hazardous substances in the country. In addition, there is hardly any sufficient public awareness on PCB risks at the moment. That will be changed by organizing awareness workshops, printing publications and sharing information through the internet. Component 1 has 2 outputs, which are:

Output 1.1: PCB laws, regulations and guidelines are upgraded to international standards. These will include: mandatory PCBs classification as hazardous waste and storage requirements; electric equipment testing, its registration, labeling and annual reporting on PCB inventories; etc. The existing wealth of international experience is utilized to remove gaps in the PCB control measures which will be upgraded to meet international standards.

Output 1.2: This output is intended to backstop the continuous information dissemination to enhance awareness on general and technical aspects associated with the risks presented by PCBs and the methods and approaches required to follow international standards of safety in their management. The target audience will be comprised of the project stakeholders at the Government and enterprise levels. Information on new and upgraded regulatory measures will be communicated through the workshops, in the media and through training of the personnel in the public sector.

The GEF co-financing for this component will cover the work of national and international experts to implement the sub-components: review and the upgrade of the regulatory measures, and dissemination of information materials through publication and workshops.

National co-financing will be in principle provided though the staff time contributions from Ministry of Environment to coordinate the regulatory system upgrade and its approval at the Government level. UNDP Jordan's resources will be utilized to disseminate information through existing UNDP information distribution channels through media interviews with UNDP management coordinating the project implementation and representation at the important national conferences and workshops, and co-sponsoring additional workshops in the country's provinces.

Component 2: Improving PCB inventory and technical capacity for Environmentally Sound Management (ESM) of PCB equipment and materials (USD 930,000 Co-financing, USD 350,000 GEF)

This component has 5 outputs, which are:

Output 2.1: This component will assist in improving the basic PCB detection capacity assessment through analytical capacity upgrade and specified training for analytical surveys on equipment potentially containing PCB. This plans to have established three (3) locations for regional testing of transformer oils for PCB content: one in the Irbid region (northern Jordan), one in the Amman region (central) and one in the Aqaba region (southern Jordan). At each location, a type of equipment similar or equivalent to Dexsil L 2000 mobile unit will be provided together with the required quantity of sets of chemicals (one set of reagents will be provided for one sample). The regular reporting will be ensured through output 2.2 on a quarterly basis to serve inputs into a central information database.

Output 2.2: This output will coordinate and support the extended sampling and testing of oil transformers. All utility companies and major industries will be covered by the project activities through direct contacts with the public and private sector stakeholders. It will be expected that these companies will have committed to actively participate with the sampling of their transformers. All collected samples will be subject to checks at the three regional centers identified in the output 2.1. During the implementation of this output, the transformer equipment will be registered and additional information will be collected: the

current equipment conditions (signs of corrosion/leakage), equipment location (critical place within the facilities, occupational aspects) and other findings, such as other PCB devices or contaminated soil within or around the site. Through these measures, extended sampling and testing of PCB is ensured and completed with regular reporting to the central PCB database. One or two technician(s) per enterprise will be trained for the testing purposes for the duration of the project. The results of such inspection will be appropriately documented and registered and, in case of new PCB equipment discoveries, will be immediately reported to the Ministry of Environment. For the purposes of improving information availability and decision-making processes, a central national database of electric equipment will be designed and put into operation. Each equipment type will get a unique inventory number. This database will serve as tracing tool but as well for reports on PCBs in Jordan.

Output 2.3: This output will provide financing for the development of ESM system. The end result expected is that the ESM system is formulated and approved for mandatory application. The international guidance will be provided to customize the system for the country's circumstances. The project product will be presented for the review and approval of the PSC committee with the follow-up recommendation for its inclusion into the national regulatory structure governing hazardous waste management to ensure that safety guidance principles for PCB equipment/materials handling are followed at the end-user level.

Output 2.4: The introduction of the ESM system will be practically backstopped by specialized trainings to ensure an appropriate implementation of legal duties with regard to the PCB management. This sub-component will address the establishment of the sustained training capacity for the safe PCB handling, packaging, storage and transportation at the enterprise level. Dedicated professionals selected among the currently employed electrical engineers (technical personnel working for the stakeholder utility companies and industrial enterprises) will undergo specialized trainings in ESM requirements and practices to disseminate and practically apply such knowledge at their respective enterprises. Through such trainings it will be ensured that the best PCB handling practices will be sustainably integrated on the practical level in the industry to assist in building national capacity for sound PCB management and stop PCB releases, human exposure and equipment cross-contamination.

Output 2.5: This output will help with the identification and selection of PCB storage facilities with the appropriate upgrade of their basic infrastructure to meet international safety standards to ensure the safe storage of PCBs (oil, equipment, and other materials) after the project start and in future once additional PCB materials will be accumulated in the results of the expanded national equipment inventory. Interim storage places are also essential in terms of supporting the environmentally safe disposal of PCB stockpiles. In the north, at Hosha site (Irbid region), IDECO utility company already operates a storage facility for disconnected transformers. The site does not yet meet any international requirements for safe storage of transformers, whether they are contaminated with PCB or not. IDECO desires very much to follow these international practices and the project will provide such assistance. JEPCO utility company has a maintenance centre and storage site in Zarqa location where as disconnected transformers are stockpiled waiting either for capital repair or scrapping. After the site visit, this facility does not meet international standards for secure PCB equipment/materials storage. JEPCO company has expressed a strong interest in upgrading their infrastructure to meet required safety and waste management standards. The third storage site will be located at EDCO utility company at Aqaba seaport. All of these pre-selected sites will be upgraded to the same safety standards. The same holds for the improvement of the process management system with the supply of adequate and necessary equipment/tools for these interim storages. The existing guidance documents developed by the Basel and the Stockholm conventions will be used as the international standard benchmarks. The upgrade of the infrastructure will be accompanied by appropriate technical advice and specialized trainings.

The GEF co-financing will be required for the portable testing equipment and the chemical reagents in sufficient quantities to enable a wide equipment testing. Further, GEF contribution will be used for specialized training of enterprise personnel in portable equipment use and ESM system application at the company level to install appropriate safety precautions to avoid PCB releases and exposure to workers. The GEF funds will also cover the establishment of the central database by a contracted database specialist with one computer procured. Finally, the GEF co-financing will cover the costs of infrastructure upgrade at the identified storage sites: (1) metal trays (2 to 4 sq m) will be procured and installed for the storage of identified PCB-containing or contaminated equipment; (2) the facilities will be upgraded with roofs to prevent rain from reaching the trays; (3) special tools will be provided (personal protection equipment, tools for emergency spills, pumps and hoses specially for PCB containing or contaminated oil); (4) packaging material for safe transportation will be provided which will meet the IMDG regulations (International Maritime Declaration on Dangerous Goods). This upgrade is required as all PCB will be shipped out for final environmentally sound disposal in licensed facilities abroad. Local and international experts will be too supported through the GEF co-financing to provide quality technical advice to the counterparts.

National co-financing will be coming from the utility companies where the regional testing centers will be established. Such co-finance will include in-kind support for basic furniture for the storage of samples, the provision of testing rooms and offices. Further, the co-financing will cover all sampling procedures (including personnel costs – field staff for the identification of PCB containing equipment and stockpiles, costs for car transportation, inclusive of fuel, and sample bottles with appropriate labels). The private sector will support the project through the provision of qualified staff for the specialized training and the commitments to implement ESM system on-site. Additionally, the national co-financing will provide area, buildings, and other required infrastructure for the operation of the storages as well as responsible care over the PCB stockpiles. Operation staff will come from the owners at their cost as their in-kind contribution to the project. The same holds for any kind of equipment that is additionally required, such as crane or fork-lift truck. These sites will closely cooperate with technicians assigned for PCB oil sampling/testing. Any incoming material will be reported to the central database operated at the Ministry of Environment. The reports will be also issued for each batch of packaged PCB material proposed for export for final disposal.

Component 3: Demonstration projects for testing ESM system and disposal of PCB containing equipment (US$ 750,000 Co-financing, US$ 400,000 GEF):

This component has 2 outputs, which are:

Output 4.1: This output will target high priority PCB materials (PCB containing devices). High priority “pure” PCB equipment and PCB contaminated equipment and liquids are collected, transported to interim storage sites, packed and sent for final disposal. The final disposal will be implemented through export of PCB materials for environmentally sound destruction in licensed facilities. Through the exchange and replication of the international experience in safe PCB management, Jordan will build up its own capacity for future collection, proper handling, transportation and shipment of PCB materials to licensed facilities abroad. Cumulatively, the component will target the collection, packaging and disposal of 30 tons of PCB transformers from Al-Husein Power Plant and 10 tons of PCB capacitors from various identified sources totaling 40 tons of “pure” PCB oils, metal parts and other PCB materials received during the controlled dismantling of transformers.

Output 4.2: During the PPG phase, it was concluded that the main problem with PCB in the Hashemite Kingdom of Jordan is related to cross-contaminated oil transformers. For the low contaminated materials,

experiences in developed countries show that oil change in transformers with 1000 ppm contamination level may be a viable domestic option. Low level PCBs concentrations could be decontaminated by oil change (replacement of PCB oil with PCB-free oil) with the follow-up checks after 6 months of equipment operation. After such operations the PCB concentrations would stay under 50 ppm level until the end of equipment's useful life. This methodology could be the most economic solution for low level contaminated equipment. The project will target the collection, packaging and disposal of approximately 100 tons of PCB contaminated materials.

The GEF co-financing will cover the disposal of the PCB materials in environmentally sound manner. And, the national co-finance will be used for the replacement of PCB equipment with non-PCB devices and the low-PCB levels decontamination practices at the enterprise level.

Component 4 - Monitoring, learning, adaptive feedback, outreach and evaluation (GEF US$ 40,000)

This component is expected to ensure that the project delivers sustained results for the country and for the replication of the experience elsewhere where it is appropriate and according to dominant circumstances. The outputs of the component are:

Output 4.1: M&E and adaptive management are applied to provide feedback to the project coordination process to capitalize on the project needs; and

Output 4.2: Lessons learned and best practices are accumulated, summarized and replicated at the country level.

Details are provided in Part I Section H: Monitoring and Evaluation plan.

The table below provides a summary cost estimate coving the proposed GEF scenario by Component and cross referenced with outcomes and outputs.

Project Outcome	Output	Cost ($US)			
		GEF	National	Other	Total
Component 1: Regulatory and administrative strengthening for PCB management.		**65**	**225**	**-**	**290**
Outcome 1: Laws, regulations and guidelines for PCB management developed	1.1 PCB laws, regulations and guidelines are upgraded to international standards (hazardous waste classification, registration, labeling and status reporting of PCBs, including PCB handling activities).	15	100	-	115
Outcome 2: Sustained and targeted awareness raising on various levels	1.2 Country-wide awareness of existing laws, regulations and guidelines, especially at stakeholder level.	50	125	-	175
Component 2: Improving PCB inventory and technical capacity for Environmentally Sound Management (ESM) of PCB equipment and materials		**350**	**930**	**-**	**1,280**
Outcome 1: Development of PCB detection and analytical capacity through equipment/ tools and specialized training for analytical surveys	Output 2.1 National capacity to analyze PCB suspected substances is improved	60	40	-	100

Project Outcome	Output	Cost ($US)			
	Output 2.2. Extended sampling and testing of PCB is ensured and completed with regular reporting to the central PCB database	100	400	-	500
Outcome 2. Development of ESM system and specialized training for PCB experts to promote the system's applicability in practice	Output 2.3. ESM system is developed and approved at the national level for mandatory application	10	30	-	40
	Output 2.4. Through specialized trainings, the national capacity for secure management of PCBs is improved and sustained. Owners of PCB equipment apply ESM guidelines for safe handling of these devices.	80	160	-	240
Outcome 3. Identification and setup of storage facilities for proper interim PCB containment	Output 2.5. Regional storage facilities have been identified, assessed, upgraded and put into operation with relevant training of storage personnel	100	300	-	400
Component 3: Demonstration projects for testing ESM system and disposal of PCB containing equipment		**400**	**750**	**-**	**1,150**
Outcome 1. Development of capacity to securely transport, handle, package, securely stockpile PCB wastes and disposal of stockpiles (pure and contaminated)	Output 3.1 Up to 40 tons of "pure" PCB devices (transformer and capacitors) will be disposed of in EMS manner as a priority PCB stockpile	120	240	-	360
	Output 3.2 100 tons of PCB contaminated material will be disposed of ESM manner	280	510	-	790
Component 4: Monitoring, learning, adaptive feedback, outreach and evaluation		**40**	**-**	**-**	**40**
Outcome 1. Project's results are evaluated, used in adaptive management and replicated	Output 4.1: M&E and adaptive management are applied to provide feedback to the project coordination process to capitalize on the project needs;	30	-	-	30
	Output 4.2: Lessons learned and best practices are accumulated, summarized and replicated at the country level.	10	-	-	10
Total Costs for Outcomes		**855**	**1,905**	**-**	**2,760**
Project Management		**95**	**275**	**-**	**370**
Total Project Costs		**950**	**2,180**	**-**	**3,130**

Global Benefits:

The project plans for the achievement of both national and global environmental benefits. The main global environmental benefit, that the project will result in, will be the minimized releases of PCBs through technical capacity building to safely handle the wastes and PCB related regulatory/enforcement measures. The identified PCB material (metal parts, equipment, PCB oil, PCM contaminated oil and other waste) will be appropriately captured, handled and stored in line with international safety standards. Such activities will be backstopped by Component 2, 3 and 4 of the project document aimed at strengthening the national technical and regulatory capacities. Then, the accumulated PCB material will be packaged and disposed of in environmentally sound way through export to licensed POPs destruction facilities (around 40 tons of already identified pure PCB equipment and estimated 100 tons PCB contaminated equipment and waste). Such work will be carried out in Component 5 of the project document through demonstration of safe PCB disposal abroad. During the project duration, the planned activities will provide important information on the scope of the problem to the decision-makers in the Government. Backed up by the regulatory measures upgrade, it will further assist in installing best practices for safe PCB material management in the country to remove the high priority PCB waste and prevent equipment cross-contamination. Such assistance will be strongly following the established international guidelines

recommended for application (the Stockholm and Basel conventions). The outline of the global benefits which the project can be categorized under:

- Benefit 1: Avoidance of PCB releases by setting up PCB management systems and raising the country capacity to fully benefit from the management system. The project will assist in:
    - establishing relevant PCB regulatory and enforcement measures in line with the international requirements;
    - establishing and sustaining the capacity for analysis and inventory of PCB equipment for improved decision-making and adequate measures to control PCB sector;
    - building technical capacity in the country to prevent the cross-contamination of electric equipment and capture PCB stockpiles in safe regional storages;
    - disseminating of knowledge on PCB risks among the public/private sectors, decision makers and the population to improve/minimize inappropriate PCB handling methods and exposure to PCB at work places;

- Benefit 2: Direct disposal of PCB containing and contaminated materials:
    - the project will specifically phase out of nine (9) priority transformers accounting for thirty (30) tons of PCB containing equipment from the current use and ten (10) tons of PCB capacitors (as it is confirmed at this moment);
    - further, the project will ensure environmentally sound disposal of one hundred (100) tons of contaminated PCB materials (transformers, PCB oils, wastes);

The project also provide broader global benefits into the future through the linkages that it has with introducing and expanding sound chemicals management concepts and a strategic approach to international chemicals management (SAICM). At a practical level, the further development of POPs management capability generally and specifically hazardous waste management infrastructure and capacity to address contaminated sites and past environmental liabilities constitute primary tools in addressing the broader chemicals management issues and as such contributes to the country's ability to make its contribution in this area of global impact.

B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL AND/OR REGIONAL PRIORITIES/PLANS:

On January 18th, 2002 the Hashemite Kingdom of Jordan signed the Stockholm Convention on persistent organic pollutants and ratified it on November 8th, 2004 thus demonstrating its national policy position respecting cooperation with the international community on the POPs issue.

The principal overarching legislative framework on environmental management was enacted in 2003 which established the Ministry of Environment. The law considers the Ministry of environment to be the competent authority for the protection of environment. Since 2003, a number of additional regulatory measures have been formulated and approved in the country. Among them is the Regulation of Management, Transport and Handling of Harmful and Hazardous Substances (initially formulated in 2003, and amended in 2005). In line with the regulation, the Ministry of Environment was assigned a responsibility for the management of hazardous substances and waste in the country. The Ministry formulates the framework of policies and action plans related to chemicals and waste management in cooperation with other national authorities:

(-) Ministry of Health regulates the import and handling of chemicals to control impacts on human health, thus, enforcing chapter 9 “Chemicals” of the Public Health Law No. 54/2002;

(-) Ministry of Agriculture is concerned with the use of pesticides, fertilizers and other agricultural chemicals. The Ministry also regulates the manufacturing, import, export and the use of such chemicals at the national level;

(-) Ministry of Finance/Customs Department are jointly responsible to enforce the implementation of national regulations on the import/export control of chemicals. The Ministry of Finance is also in charge of country budget allocation for chemical related programmes;

(-) Ministry of Interior is responsible for licensing vehicles used for chemicals transportation and for chemical accidents and emergencies. The Ministry is also in charge of permits for the construction of any new chemical industries in Jordan;

(-) Ministry of Foreign Affairs is mandated to coordinate all international aspects of chemicals and waste management;

(-) Ministry of Justice is concerned with the development and enforcement of laws and regulations;

(-) Ministry of Planning and International Cooperation primarily deals with economic planning and coordinates the development assistance.

The country’s priorities and response measures related to POPs chemicals have been well defined in the NIP which was approved by the Government of Jordan in 2006. In 2006, these were also reflected in the amended environmental protection law. Additionally, the Jordan’s environment sector challenges were addressed in the National Agenda. The POPs initiatives outlined in the NIP were mainstreamed in the National Executive Programme for Jordan (2007-2009), as well as in the Government Implementation Plan 2010, and in the planned National Executive Programme which will cover the period of 2011-2013, where POPs aspects are highlighted as priority issues under the environmental pillar. The main challenges were indentified in the National Executive Programme and these relate to the existing legislative and regulatory frameworks, hazardous and chemical waste management in general. Therefore, several initiatives were recommended within the National Agenda to address these challenges, such as:

(-) to strengthen legislative and institutional framework for environmental sustainability and enforce relative legislation,

(-) to develop solid waste management policies,

(-) to identify sites for environmentally sound disposal of hazardous wastes,

(-) to develop hazardous and chemical waste institutional framework which includes knowledge dissemination mechanisms and information tracking, along with an enforcement regime, in order to ensure that hazardous and chemical waste is adequately stored, collected, and disposed of, and

(-) to improve medical waste segregation, transportation, storage and treatment.

In addition, Jordan ratified and became a party to several international agreements related to hazardous chemicals and their management and disposal. These agreements are listed below:

(-) The Basel Convention of the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Jordan Signed this agreement and it entered into force in 1992. In response to the ratification, a technical committee for the management of harmful and hazardous materials was formed and tasked with the classification of harmful, hazardous, prohibited and restricted materials and their wastes.

(-) The Montreal Protocol on Substances that Deplete the Ozone Layer. Jordan ratified the agreement in 1989 and all of its amendments in 1993 and onwards (The London amendment in 1993, the Copenhagen amendment in 1995, the Montreal amendment in 1999 and the Beijing amendment in 2001.

(-) The Rotterdam Convention on Prior Informed Consent (PIC). Jordan ratified the agreement in 2002. Consequently, the Ministry of Environment was assigned a role of the Designated National Focal Point for Chemicals, and the Ministry of Environment became the focal point for pesticides

The project has been design to correspond to and reflect the activities outlined in the POPs National Implementation Action Plan. Specifically, the following project activities have been planned for the implementation:

PCB Related NIP Action Plan Provisions	**Proposed Project Component/Outcome/Output**
Introduce/upgrade regulations which should include compulsory deadlines for replacement of all equipment with PCBs, and reporting system on PCB inventories and equipment condition	Component 1 – Outcome 1 Component 2 – Outcome 2
Complete restriction of import of equipment (mainly transformers and capacitors) containing PCBs based oils / Ensure monitoring and control of imported equipment and machinery	Component 1 – Outcome 1
Complete field surveys to include all possible PCBs containing equipment in the private/public sectors and generally in the country / Establish a databank and log-books to centrally accumulate data about equipments that may contain PCBs	Component 2 – Outcome 1
Adopt and apply intensive maintenance programs in order to ensure prevention of leakage of PCBs to surroundings / Improve national capacity in the environmentally safe management of PCBs stockpiles	Component 2 – Outcome 2 Component 2 – Outcome 3 Component 3 – Outcome 1
Upgrade analytical capability, in close cooperation with concerned institutions, and provide it with necessary testing tools and devices in order to check for presence of PCBs in electrical equipment & appliances	Component 2 – Outcome 1
Develop and adopt an acceptable way to separate and dispose PCBs from oils and transformers that will comply with environmental laws and standards	Component 3 – Outcome 1
Replacement and disposal of PCB containing equipment/materials	Component 3 – Outcome 1
Develop a national public awareness and training programme for all workers and technicians dealing with PCBs and transformers, in close cooperation with concerned NGOs and electricity entities	Component 1 – Outcome 2 Component 2 - Outcome 2

C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS:

The overall project objective and specific outcomes have been designed to contribute towards the Strategic Objective of GEF-4 for Persistent Organic Pollutants focal area – the protection of human health and the environment through the reduction and elimination of production, use, and releases of POPs. The project targets the development of country's capacity for the environmentally sound management of POPS chemicals in order to help implement the country's obligations under the Stockholm Convention.

The project's outcomes and outputs are full compliance with the GEF strategy for POPs management and are aligned with the GEF POPs Strategic Program 1 - Strengthening capacity for NIP development and implementation, and Strategic Program 2 - Partnering in investments for NIP implementation:

Strategic Program 1 (SP1). Jordan has completed initial activities to formulate the NIP and outline the priorities to be addressed in the follow-up projects. However, the country experiences shortage of knowledge and experience with regard to the environmentally sound PCB management. In consequence, the country is in need for the replication of international experience on the national level in order to develop its basic capacity to meet the Convention's objectives. In SP1, the project will target to:

(-) introduce and upgrade its POPs regulatory regime, with specific regard to PCBs,
(-) improve the knowledge and accumulate expertise with regard to the life-cycle management of PCB materials, including final disposal abroad, and
(-) improve awareness among the project stakeholders and the public in general on the risks associated with improper handling of PCBs, and
(-) implement a more detailed and comprehensive PCB equipment inventory in order to improve decision making processes.

The outputs of the project are therefore aligned with the SP1 indicators:

(-) legislative and regulatory framework in place in supported countries for the management of POPs and the sound management of chemicals in general;
(-) strengthened and sustainable administrative capacity, including chemicals management administration within the central government in supported countries, and
(-) strengthened and sustainable capacity for enforcement in supported countries.

Strategic Program 2 (SP2). The program aims to reduce POPs production, use and releases as well as the impacts on human health and the environment resulting from exposure to POPs chemicals. In line with this objective, the project was developed in terms of its design to address these issues through:

(-) establishing the environmentally sound management (ESM) system for PCBs and testing it in practice before wider replication on the national level,
(-) upgrading of PCB equipment drainage and storage infrastructure, and
(-) skilled and safe disposal of PCB materials through export abroad.

Therefore, the project is directly aligned with and contributing towards the following SP2 indicators:

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

Through the provision of substantial co-finance resources coming both from private and public sectors, the Government has demonstrated the serious intentions to support the implementation of activities planned within the scope of SP1 and SP2 and reduce PCBs materials from the current use.

D. JUSTIFY THE TYPE OF FINANCING SUPPORT PROVIDED WITH THE GEF RESOURCES.

The GEF resources will be in the form of a grant to primarily co-finance the required capacity development in the private and public sectors to establish a system for sustained and sound PCB management in the country. The GEF support will further assist in setting up financially self-sustaining scheme including electricity distribution enterprises and industrial sector to promote the identification, labelling, proper handling and replacement of PCB containing/contaminated equipment. The subsequent upgrade in storage facilities to match the international standards and final disposal of PCB materials will be supported with the GEF grant. Such GEF support is consistent with the GEF's Focal Area Strategy and financing principles.

E. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

The current project will ensure close coordination of the activities with the following national/regional level initiatives:

(-) The Regional Industrial Chemicals Programme under the Rotterdam Convention aimed at developing the capacity of the parties to manage industrial chemical on the national level with a total budget of 312,000 US$. The programmed includes a series of technical assistance activities intended to support parties in developing a sound national regulatory framework for the safe management of industrial chemicals. The project is under formulation and the cooperation on the programmatic level will provide a good opportunity to avoid any duplication in the planned activities;

(-) USAID funded project entitled "Tracking system for the management of industrial liquid and semi-solid wastes" aims at (i) controlling the disposal of industrial liquid and semi-solid wastes, (ii) environmental sound management of industrial liquid and semi-solid wastes, and (iii) developing a national database for industrial liquid and semi-solid wastes", with total budget of US$ 1 mln;

(-) USAID funded project entitled "Hazardous waste management in small and medium enterprises" with a total budget of US$ 1 mln and with the following objectives: (i) improving the management of hazardous wastes in small and medium enterprises, (ii) providing environmental tools for personal protection, (iii) provide environmental tools for proper collection and segregation of hazardous wastes in small and medium enterprises, (iv) increasing the level of awareness and knowledge in municipalities related to industrial wastes in small and medium enterprises;

(-) Basel Convention Regional Center's project on auditing and monitoring of hazardous wastes in medium and large industries with a total budget of US$ 100,000. The primary project's goals are (i) improving the management of hazardous wastes in medium and large industries, (ii) providing tools to improve the wastes classification and labeling, (iii) creating a mechanism for coordination between industries and public and private sectors (monitoring and inspecting agencies);

(-) PACE supported project for Jordan (a pilot project out of the four similar projects globally – US$ 30,000) on studies to improve the collection and management of used and end-of-life computing equipment. The project is intended to improve the collection and management of end-of-life electronic equipment and wastes.

(-) GEF/UNEP project "Demonstration of Sustainable Alternatives to DDT and Strengthening of National Vector Control Capabilities in Middle East and North Africa" covering Djibouti, Egypt, Iran, Jordan, Morocco, Sudan, Syria, Yemen with the objective to reduce the reliance on DDT and to promote appropriate vector control management practices by strengthening capacities of countries to sustainably implement environmentally sound alternatives.

(-) GEF/UNIDO project "Promotion of Strategies to Reduce Unintentional Production of POPs in the PERSGA Coastal Zone" covering Egypt, Jordan, Sudan, Yemen. The project will reduce and/or eliminate UP-POPs in key sectors of industry (cement, incineration, metallurgy and pulp and paper) through the introduction of BAT/BEP strategies in the industrial sector of the coast in the PERSGA eligible member countries.

In addition, Jordan is a member in the PCBs Elimination Network (PEN). Being a member would be a benefit to arrange for information exchange on the promotion of the cost-effective completion of the environmentally sound management (ESM) of liquids and equipment containing or contaminated with PCBs, promote ESM of PCBs equipment and materials, promote technical assistance and technology-transfer, provide and facilitate information exchange, raise awareness, encourage development and adoption of environmentally-sound techniques and practices to eliminate PCBs.

F. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH INCREMENTAL REASONING :

The NIP exercise provided the opportunity to collect preliminary and information on PCB equipment inventory and PCB management practices which revealed a very low awareness on PCB associated risks.

After adopting the NIP in 2006, due to absence of adequate knowledge, experience and technical and financial resources, the country did not advance well with the implementation of the NIP priorities with regard to the safe PCB management. There have been no any additional national level measures taken to control and manage PCB chemicals with the exception for the studies carried out during the formulation of the current project proposal. Therefore, there has been little progress achieved towards the implementation of the Stockholm Convention in terms of the management of industrial POPs chemicals. During the PPG phase, it has been further confirmed that only marginal awareness on PCB risks existed on the ground and no substantial PCB removal activities would take place without the support from GEF which would serve as catalyst for policy change.

Therefore, the business as usual scenario would not introduce proper PCB handling practices with equipment repair, resulting in PCB contamination spreading among the electrical equipment fleet and wider environment. The limited knowledge on safe PCB equipment maintenance methods and the lack of designated and safe storages would result in that utility companies and industrial sector would not establish relevant PCB equipment elimination action plans at the enterprise level. The lack of reference and experience with the application and enforcement of the internationally established standards for PCB handling on the Government level would not allow effectively controlling such practices in the private sector. In a situation if the GEF is not provided for the PCB management capacity building and PCB elimination, the country would not advance with the implementation of the Stockholm Convention and the business as usual scenario would continue to prevail in such circumstances.

The project formulation funding has allowed to leverage significant national co-finance resources which would not have happened otherwise to support the basic PCB safeguarding activities and, as it was outlined in the business as usual scenario, there has been no planned or dedicated activity detected in this area in the country to sustain the implementation of the Stockholm Convention, and the project is therefore is considered as incremental. The project in terms of its design will essentially result in national and global environmental benefits as described in Section A “Global benefits”, and these are considered as significant at the end of the project implementation which are in line with the objectives established by the Stockholm Convention and the GEF in the POPs strategic programme for GEF-4. In the absence of the international support and the replication of best practices on the national level, the outlined global benefits would not be achieved, and therefore the project is incremental.

The Incremental Cost Matrix is provided below and it indicates the incremental costs related to the GEF assistance and national contribution towards the project.

Incremental Cost Matrix

Project Development Objective/Global Project Objective: Environmentally sound management and disposal of PCB in the Hashemite Kingdom of Jordan				
Project Outcome	**Baseline**	**GEF Alternative**	**Global Benefits**	**Incremental Costs (US$)**
Component 1. Outcome 1. Laws, regulations and guidelines for PCB management developed	Basic PCB management legislation is absent which does not allow exercising proper Government control and monitoring in this area.	Regulations and guidelines are established and upgraded to international standards.	All stakeholders, especially the owners of PCB equipment are obliged to follow and apply regulations and guidelines and risks associated with lack of enforcement framework are mitigated	GEF: US$15,000 Co-financing: US$100,000
Component 1. Outcome 2. Sustained and targeted awareness raising on various levels	The overall awareness level on PCB risks among the decision makers, users of electrical equipment and population is very low and geographically fragmented with no educational activities planned before.	The project will support consolidated and wide distribution of required information on the PCB risks and planned Government's response. Through various media and workshops, information will be disseminated to the target audiences to improve knowledge in this area.	Knowledge about PCB associated risks will be spread widely. Project stakeholders are better prepared and willing to assist in addressing the PCB issues in the country.	GEF: US$50,000 Co-financing: US$125,000

Component 2. Outcome 1. Development of PCB detection and analytical capacity through equipment/ tools and specialized training for analytical surveys	No proper inventory of PCB equipment exists. There is very basic GC equipment at a specialized laboratory in the south of the country (Aqaba Special Authority) and in the Royal Oil Refinery. Analytical service at both is too expensive per unitary sample cost and slow in testing processes. The laboratories also lack the relevant and up-to-date methodologies for testing PCB oil samples and PCB in media. Given the large and geographically fragmented stock of electrical equipment potentially contaminated with PCB oil, these analytical options are not sustainable for the project's objectives	Low priced portable equipment for the purposes of field equipment surveys will be procured and delivered for faster and cheaper testing of oil for PCB content. The equipment will be distributed to the utility companies on a rotational basis to ensure as wide coverage of equipment as possible. There will be specialized training provided to the users to ensure the proper use of the tools. For the existing labs, the project will supply necessary modern methodologies to ensure accurate testing of PCB oil samples as well as for the PCB analysis in the media and provide technical advice and training on their use. The information will be reported to the central data base to improve the decision-making processes.	The technical support of this kind will tremendously facilitate the so much required wide testing of electrical equipment through low cost of testing procedures. The project will also contribute to the accumulation of necessary data for the information exchange on PCB contamination as the media monitoring capacity will be strengthened. The national capacity to monitor PCB in equipment and media will be more sustainable than in business as usual scenario.	GEF: US$160,000 Co-financing: US$440,000
Component 2. Outcome 2 Development of ESM system and specialized training for PCB experts to promote the system's applicability in practice	ESM system for proper PCB management and skills to implement it are lacking. Low level of awareness among the technical staff of participating companies has been documented.	Guided by international experience, PCB team and direct project stakeholders from public/private sector (PCB owners) will actively develop and apply ESM system at the enterprise level. ESM system is approved for implementation country-wide through regulatory control.	All indentified project counterparts that are involved in handling, maintenance, transport of PCB equipment are trained and gain skills in the proper handling of PCB equipment and materials which avoids the equipment cross-contamination and prevents PCB releases in the environment. Through training of experts, the knowledge is spreading to additional number of technicians to improve the national capacity.	GEF: US$90,000 Co-financing: US$190,000

Component 2. Outcome 3. Identification and setup of storage facilities for proper interim PCB containment	There are no secure PCB storage locations identified in the country. Some utility companies operate facilities for temporary storage of decommissioned electrical equipment; however, such are not considered as meeting international standards for secure and safe storage of PCB equipment and materials. There is lack of experience in handling such hazardous material as PCBs which identifies a gap to be addressed by the project.	In principle, the project will plan for the upgrade of 3 interim storages in the country to meet internationally established practices, including the introduction of associated process management systems. With the introduction of mandatory regulations for the safe management and disposal of identified PCB equipment, the equipment holders will be confident in using the storage options provided. The southern seaport in Aqaba, being the primary candidate PCB export point, will also be equipped with necessary tools to allow PCB oil draining and equipment and PCB materials packaging.	The upgrade of required PCB storage infrastructure to meet international standards will enable to temporarily secure priority PCB materials before their disposal abroad. The infrastructure will also serve such future needs in the medium and long term. The safe and controlled storage will significantly support the ESM system and prove its functionality. Thus, the potential releases of PCBs which could have occurred in the business as usual scenario would have been prevented. Identified PCB containing equipment in general will be accumulated at these three sites and prepared for the final disposal through export. The handling of PCB materials will follow international practices to safeguard environment and ensure safe on-job conditions.	GEF: US$100,000 Co-financing: US$300,000

Component 3. Outcome 1. Development of capacity to securely transport, handle, package, securely stockpile PCB wastes and disposal of stockpiles (pure and contaminated)	In the business as usual scenario, the PCB equipment and oil handling practices are not environmentally friendly and health protective. PCB containing or contaminated equipment continues to be unidentified and unlabeled. Transformers and capacitors are scrapped regardless of any potential contamination with PCB which is unsustainable. Low level of knowledge and practical skills to handle PCB equipment and materials require on-site training in methods meeting internationally accepted criteria.	The risks related to the spread of PCB contamination are minimized and eliminated through the secure capturing of the identified PCB equipment and materials in safety upgraded storages. No PCB equipment goes to the metal scrap dealers. The PCB oil is drained in a skilled and informed manner; PCB materials are packaged according to required standards and disposed of. Since the main barrier is the cross-contamination, contaminated oil transformers (up to 1,000 ppm PCB) could be re-filled by PCB free oil as the most cost-effective measure with follow-up PCB content tests after 6 months of operation. All PCB goes to licensed facilities for final disposal.	The project will eliminate up to 40 tons of PCB containing transformers and capacitors as the priority PCB material, and further dispose of up to 100 tons of the PCB contaminated material. By doing so, the PCB materials available in the country will be minimized in amount; equipment cross-contamination will be prevented and PCB releases will be reduced. The national capacity for the full cycle PCB handling will be increased.	GEF: US$400,000 Co-financing: US$750,000
Component 4. Outcome 1. Monitoring, learning, adaptive feedback, outreach and evaluation	No activity in the baseline scenario	Project monitoring and evaluation allows for adaptive project management to achieve its objective; accumulation of lessons learned for the dissemination to stakeholders	Lessons learned are disseminated and potentially replicated in other countries	GEF: US$40,000 Co-financing: -
INCREMENTAL COST SUMMARY: Co-financing for Outcomes: US$1,905,000 Co-financing for Project Management: US$275,000 **Total Co-financing: US$ 2,180,000** GEF for Outcomes: US$855,000 GEF for Project Management: US$95,000				

G. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED AND OUTLINE RISK MANAGEMENT MEASURES:

The summary of the risks associated with the project are presented below. The overall average risk for the project is considered to be low. A medium level of risk attached to the fluctuations in the market prices for the copper cores of the transformers as well as currency exchange rates. Through advance and careful planning of the disposal ITBs (international tenders) through the study of market prices, the risk is believed to be mitigated during the project implementation. The additional risk is associated with the cooperation of PCB owners on implementing the inventories and PCB equipment disconnection from the work operations for follow-on disposal. The initial steps to address this particular risk were taken during the PPG phase and resulted in increased attention from the private sector in the project. Additional awareness raising measures will be planned by the project team on the regulatory plans to inform the counterparts on the controls on PCBs to be established by the Government with assigning a liability over the disposal of PCB equipment to the owners to stimulate further interest in using the project's capacity to eliminate the PCB materials. With the replacement of old equipment with modern electrical equipment, it is expected that the energy use by such installation will be reduced due to better design of equipment core modules (shorter and better performing windings). Therefore, there could be a positive response to climate change risks; however, with the destruction of the PCB materials by a combustion technology climate change risks may be increased through the emission of flue gases at the waste disposal factories. The risk, though, will be equal to the climate risks associated with such disposal operations documented during GHG gas releases at licensed hazardous waste operators in developed countries.

Risk	Risk rating	Risk mitigation strategy
Co-financing parties provide lower contributions towards the project activities during the implementation of the project	L	During PPG phase, intense consultations have been held with the private and public sector – owners of electric equipment. Resulting from these, the equipment holders assumed strong responsibility for the project's success and committed considerable co-finance resources. The commitment of resources in most of the cases was confirmed by the respective board of directors which underlines dedication towards the project taken by the participating companies.
Longer time periods required for the adoption of the required legislation and regulatory measures and PCB holders delay their actions before the legislation is in place.	L	The project implementation will start with the development and upgrade of PCB regulations. The PPG phase has already informed the PCB holders about the coming changes to install control over PCBs in the country, and the willingness of project parties has been documented through the co-finance letters attached to this proposal. The risk will be further mitigated by additional awareness raising on the Government plans through PCB workshops and direct contacts with the stakeholders.
Currency exchange rates and market prices for copper and other metals found in PCB transformers reduce in value and consequently disposal prices for equipment increases thus limiting PCB quantities for exportation/disposal	M	The impact of reduced capacity in terms of volume of PCBs eliminated would be mitigated by prioritizing those stockpiles having the highest PCB concentration and greatest environmental and/or health risk in the event of release. The project will ensure expanded research of current market prices to identify the optimal market conditions in order to effectively utilize international bidding procedures to achieve best value-for-money during disposal of PCB materials.
High environmental and health risks are introduced as a result of project activities related to PCB handling at the national level (equipment draining operations)	L	The project will ensure the application of currently applicable safety standards developed by the Basel Convention. The use of such standards will be ensured throughout the whole duration of the project and recommended for adoption in the national hazardous waste management policy to install such mandatory requirements for concerned parties. The supervision over the application of such safety rules will be entrusted with the respective Government bodies. Technical assistance will be provided by the project to ensure best available technical advice.

H. EXPLAIN HOW COST-EFFECTIVENESS IS REFLECTED IN THE PROJECT DESIGN:

At a general level, the cost-effectiveness is linked to the experience and materials accumulated in other PCB

management projects implemented by UNDP. All such materials (whether awareness raising or technical) will be recommended for use in Jordan without the need to develop new materials of the same content.

On a specific level, the equipment inventory and the PCB material draining and storage components of the project will be heavily co-financed in cash and in-kind resources by the private sector parties through allocating personnel for specialized trainings, expanded equipment sampling and carrying out local works required for the upgrade of the storage facilities. While these project components will be at activity level at medium cost for the GEF, the provided high co-financing will promise a very cost effectiveness for the GEF funds to achieve impact.

After the project's intervention, the ongoing equipment cross-contamination will be stopped which will avoid creating additional stockpiles of PCBs materials. However, if any additional stock of PCB equipment is to be detected after the project is over, the available safe and secure storage capacities will be useful for the containment of such materials.

The project will further phase out the all known PCB containing devices and assist in disposing of PCB contaminated oil detected in Jordan. The emphasis on "pure" PCBs will provide a far greater risk reduction, and global impact, as well as cost-effectiveness as compared with lower concentrated PCB streams.

During the disposal operations, the project will ensure striking a value for the use of allocated funds through careful planning of PCBs final disposal in terms of use international tenders to identify offers with the best value for the fixed budget. This combined with efficient transport routes both inland and internationally would provide a low to medium cost-effectiveness for the project.

PART III: INSTITUTIONAL COORDINATION AND SUPPORT

A. INSTITUTIONAL ARRANGEMENT :

The Executing Partner (IP) for the overall project will be the Ministry of Environment (MoEnv) which acts as the national focal point for the Stockholm Convention. The main stakeholders will be participating in the project by contributing the identified co-financing resources. Other significant institutional stakeholders will be a part of the project through their role in parallel projects and operational authorities for public protection are the Ministry of Agriculture, Ministry of Health, Ministry of Energy and Mineral Resources.

B. PROJECT IMPLEMENTATION ARRANGEMENT:

The project will be executed following established UNDP national execution (NEX) procedures. The NEX Advances modality will be applied which will entail using the MoEnv financial systems.

A Project Board (PB) will be established by the IP to provide strategic, long-term guidance for the project and provide consultations whenever needed. The PB will make recommendations on issues such as the prioritization of project activities, shifts in strategic direction when required and also help to secure project partnerships with other relevant institutions. The PB will meet twice a year and include a high official representative from MoEnv (Chair), UNDP and the GEF Operational Focal Point, and the Jordanian Ministry of Planning and International Cooperation (MOPIC).

The IP will designate the Director of the Hazardous Substances and Waste Management Directorate as a National Project Manager (NPM) to be dedicated for the project implementation, and will hire through the GEF fund two experts with background in electrical engineering and an administrative/financial assistant, where the salaries of this staff will be covered by the Ministry of environment after the project completion to ensure the sustainability of the project activities. A summary of the roles and responsibilities of the (NPM), the two expert engineers, and the administrative/financial Assistant is provided below.

The NPM will assume overall responsibility for the successful implementation of project activities and the achievement of planned project outputs. She/he will work closely with the national and international experts hired under the project, as well as the Project Assistant, and will report to the PB and to the UNDP Country Office (UNDP CO). The two expert engineers will provide technical support to the NPM and the relevant stakeholders on day-to-day project activities. The Administrative and Financial Assistant will provide assistance to the NPM and the project staff. She/he is responsible for all administrative (contractual, organizational and logistical) and accounting (disbursements, record-keeping, cash management) matters related to the project.

The IP will establish the Project Advisory Committee (PAC) to oversee the implementation of the project. The (PAC) will provide overall guidance and direction to the project implementation, in accordance with the project document and annual work plan, overseeing the project's technical progress and providing recommendations for its improvement, where necessary, reviewing Project Monitoring and Evaluation Plan that will assess the project success, ensuring coordination of project activities with related national and donor-funded initiatives, advocating to the project outcomes, outputs and activities. The PAC will meet on quarterly basis and include representatives from MoEnv (chair) and all relevant institutions, industries, eclectic companies.

UNDP CO will play the role of Senior Supplier—being a GEF Implementing Agency represented in the country. Project assurance will be ensured by GEF OFP, UNDP CO together with the UNDP GEF RCU. The PB will monitor the project's implementation, provide guidance and advice, and facilitate communication, cooperation, and coordination among stakeholders and other project partners. At the initial stage of project implementation, the PB may, if deemed advantageous, wish to meet more frequently to build common understanding and to ensure that the project is initiated properly. Further details on the PB are provided in the monitoring and evaluation section of the document. The project will hire short-term national and international experts for specific project assignments (see Annex C for indicative scope of the assignment of key experts/ consultants). Project activities will be contracted out on a competitive basis through tenders.

The project will be implemented in close coordination and collaboration with all relevant government institutions, regional authorities, industries, electric companies and NGOs, as well as with other related relevant projects in the region. The UNDP-CO will be an active partner in the project's implementation. It will support implementation by

monitoring the project budget and project expenditures, contracting project personnel, experts and subcontractors, undertaking procurement, and providing other assistance upon request of the IP. The UNDP-CO will also monitor the project's implementation and achievement of the project outcomes and outputs, and will ensure the proper use of UNDP/GEF funds. Financial transactions, reporting and auditing will be carried out in compliance with national regulations and established UNDP rules and procedures for national project execution.

In order to accord proper acknowledgement to GEF for providing funding, a GEF logo will appear on all relevant GEF project publications, including, among others, project hardware purchased with GEF funds. Any citation on publications regarding this project will also accord proper acknowledgment to GEF. The UNDP logo will also be used in the publications along with the GEF logo.

PART IV: EXPLAIN THE ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF:

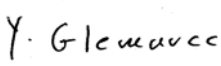
The project is fully aligned and consistent with the original PIF. Its components are in match with the PIF's general objective and outcomes as outlined at the time of the PIF approval. However, the project document has been further expanded based on the knowledge about the PCB situation in the country received during the project formulation stage.

During the preparation of the project document it was concluded that "pure" PCB devices, such as transformers and capacitors, have not been found in significant quantities as it was originally expected. However, the main challenge is now assumed to be more related to PCB contaminated oil transformers. Therefore, an additional outcome on the oil replacement in such equipment was envisaged in the project document to help deal with this challenge. Such proposed activities are linked to the international experience of developed countries where oil replacement in electrical equipment with a certain level of contamination (up to 1,000 ppm) is the most economic solution. Due to the changed baseline situation, the project will target 40 tons of pure PCB equipment and 200 tons of PCB contaminated materials for safe management and final sound disposal.

The distribution of GEF funding remains the same as indicated in the PIF. During discussions with major project stakeholders and co-financing parties, a high interest in the project activities has been documented and the PPG phase has resulted in leveraging co-finance resources which exceed the original plans.

PART V: AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.

Agency Coordinator, Agency name	Signature	Date	Project Contact Person	Telephone	Email Address
Mr. Yannick Glemarec, Executive Coordinator, UNDP-GEF		September 30, 2010	Dr. Suely Carvalho, GEF Principal Technical Advisor for POPs/Ozone UNDP/MPU/Chemicals	1-212-906.6687	suely.carvalho@undp.org

ANNEX A: PROJECT RESULTS FRAMEWORK

Project Strategy	Objectively verifiable indicators	Baseline	Target	Sources of verification	Assumptions
Objective: Implementation of a comprehensive PCBs management system in the Hashemite Kingdom of Jordan	Comprehensive PCB management system is installed on country-wide level through capacity building which is tested and promoted by demonstration for PCB final disposal in order to meet Jordan's obligation under the Stockholm Convention by the end of the project.	• Lack of up-to-date regulatory measures for PCB control • Lack of national capacity and experience with PCB identification and management • Limited national resources for the implementation of the Convention • Low level awareness on the PCB risks	• Regulatory measures to assist in the identification, labelling, capturing and disposing of PCB materials. • ESM system to cover PCB handling in line with internationally accepted standards. • National capacity to manage PCB is upgraded through transfer of technical advice and specialized trainings • PCB materials are known, labeled, stored and disposed of in environmentally sound ways	• Documented number of regulatory upgrades which are approved in the country • PCB database is functional • Country Convention compliance status reporting. • Project Progress and M&E reports	• Electrical equipment owners are fully committed to support the project's objective on a sector wide basis • Legislative upgrade and enforcement capacity is ensured by the authorities and the implementation is done in good cooperation with project stakeholders • Accurate monitoring and reporting.
Component 1					
Outcome 1 Laws, regulations and guidelines for PCB management developed	Regulations and guidelines for PCB management are in line with international standards including registration, labeling and reporting of potential all PCB and PCB containing materials in use in 2010.	• Lack of appropriate regulatory measures to start controlling the PCB handling aspects in the country • Potentially PCB contaminated equipment goes for metal scrapping without oil testing • No mandatory identification, registration and reporting on PCB equipment is done across the equipment owners • In the absence of controls, private sector does not attach importance to voluntary cooperation measures to improve PCB management practices	PCB regulations and guidelines are commonly developed in order to meet international standards and practices to backstop effective and safe PCB controls.	• Documented number of regulatory upgrades which are approved in the country • Records of published regulatory measures (newspapers, web-site information) • Inventory of PCB equipment is updated and information is documented through regular reports • Project Progress and M&E reports	• Legislative upgrade up to internationally accepted standards and enforcement capacity is ensured by the authorities and the implementation is done in good cooperation with project stakeholders • Electrical equipment owners are fully committed to support the project's objective on a sector wide basis

Project Strategy	Objectively verifiable indicators	Baseline	Target	Sources of verification	Assumptions
Outcome 2 Sustained and targeted awareness raising on various levels	Information dissemination campaigns ensure availability of printed and electronic information through workshops and work with media	• Significant gaps in knowledge about PCB associated risks • No information products published • Very limited number of workshops held	• Information products developed and published • National workshops are arranged throughout the project's duration to distribute developed information packages • Media coverage on PCB issues is ensured	• Copies of publications • Documented media appearances and newspaper articles • Number of workshops held and number of participants • Project Progress and M&E reports. • Setup of the web-site	• Professional technical advice is ensured and the quality of information is high • Project stakeholders are receptive of the information and show interest
Component 2					
Outcome 1 Development of PCB detection and analytical capacity through equipment/ tools and specialized training for analytical surveys	• Country has a comprehensive inventory of PCB containing and contaminated equipment • Reports from personnel responsible for equipment testing. • Labeling of tested equipment showing the new classifications (PCBs free, contaminated above 50 ppm • 2 units of portable sampling and testing equipment are supplied • 2 engineers per utility company are trained in the use of such equipment.	• Analytical capacity is limited to specialized labs with GC equipment, lacks modern protocols for PCB identification and skills for the use of such protocols. GC equipment is expensive per unitary sample test and slow in delivering testing results. • Country does not have a comprehensive inventory of PCB equipment	• All potentially contaminated oil transformers at utility sector and major private industries are tested for PCB. Equipment is labeled and registered • Comprehensive PCB equipment inventory is done and helps accurate reporting to the authorities • PCB equipment is recorded in a centralized manner for the use by authorities and for public information • The database serves reporting obligations to the Stockholm Convention • Analytical capacity is upgraded through the supply of portable equipment and GC protocols and specialized trainings for existing labs.	• Number of PCB equipment inventory reports from private sector • Central database is filled with data on a regular basis and is operational • Project team verifies inventory through direct visits to the project stakeholders.	• Electrical equipment owners are fully committed to support the project's objective on a sector wide basis • Enforcement capacity is ensured by the authorities and the implementation is done in good cooperation with project stakeholders

Project Strategy	Objectively verifiable indicators	Baseline	Target	Sources of verification	Assumptions
Outcome 2 Development of ESM system and specialized training for PCB experts to promote the system's applicability in practice	Development of ESM system is completed and it's successful implementation is backstopped by appropriate PCB legislative framework	• PCB equipment handling is unsafe and does not meet any international norms. • Potentially PCB contaminated equipment goes for metal scrapping • Low level awareness of PCB associated risks • No specialized training in safe PCB management has been provided and no capacity exists to prevent PCB releases or equipment cross-contamination • No secure PCB material storage facilities exist	• ESM system is developed • PCB holders are aware of PCB risks associated with equipment maintenance and retirement. • Private sector is trained in identification and registration of PCB equipment • Three regional PCB storage facilities established and upgraded to meet international standards with appropriate training for personnel • Private sector is provided professional services to pick-up, transport and handle indentified PCB materials in ESM manner to prepare the waste for final disposal	• ESM system is approved by law for mandatory application • Number of trained personnel in ESM techniques and methods • Number of companies implementing ESM .	• Electrical equipment owners are fully committed to support the project's objective on a sector wide basis • Legislative upgrade and enforcement capacity is ensured by the authorities and the implementation is done in good cooperation with project stakeholders
Outcome 3 Identification and setup of storage facilities for proper interim PCB containment	Three interim PCB accumulation and storage points are installed and meet internationally accepted standards for safety and management by 2012	• Lack of modern and safe interim PCB accumulation and storage points. • Owners of PCB transformers willing to dispose of the priority hazardous materials in poor condition lack the opportunity to do so. • Unprotected storages for disconnected electrical equipment, including PCB equipment, increase the risks of PCB spread into the environment.	• Three PCB accumulation and storage facilities are upgraded to meet internationally accepted standards and this backstops the functioning of the ESM system. • All phased out transformers, especially those that are tested for PCB above 50 ppm, PCB capacitors and other PCB materials are stored in safe and environmentally sound manner which meets internationally practices • Uncontrolled PCB releases from stored disconnected PCB equipment are minimized.	• National/international tenders for the infrastructure upgrade and reports/certification by international experts on the storage management setup system. • Approval of facilities by authorities • Project Progress and M&E reports.	• All 3 foreseen interim storages are agreed by the owners. • ESM system regulations are adopted in time • Operation team at interim storages is well trained and equipped.
Component 3					

Project Strategy	Objectively verifiable indicators	Baseline	Target	Sources of verification	Assumptions
Outcome 1 Development of capacity to securely transport, handle, package, securely stockpile PCB wastes and disposal of stockpiles (pure and contaminated)	• Incoming inventory reports from the interim storages on quantities, characteristics and origin of the PCB materials. • Trained personnel at the storage sites to assist in transporting the waste material to storage/handling sites, safe PCB oil draining, packing and securing the wastes by 2012. • Additional tests for cross-contaminated equipment which underwent oil replacement (equipment contamination level allowed at 1,000 ppm upper limit level) • Disposal of 40 tons of pure and 100 tons of contaminated PCB materials by export to a licensed disposal facility by 2014.	• Limited capability in the safe handling of PCB materials. • PCB equipment is sent for scrap and contamination of media and exposure of workers continues.	• National capacity to handle PCB materials for final safe disposal is improved. • Economical solution for oil transformers with contamination below 1,000 ppm PCB in the oil is developed. • Equipment containing PCB (40 tons) and oil contaminated with PCB above 50 ppm (100 tons) will be disposed of according to international standards and practices for all times. • Number of PCB contaminated transformers is reduced in the country allowing minimizing further equipment cross-contamination.	• Data reporting on packed PCB materials from storage facilities • PCB content certificates for previously PCB contaminated equipment after PCB oil was replaced. • Approvals for PCB material shipment in line with the Basel convention requirements • Project tender documentation • Destruction certificates for PCB materials received from licensed disposal facilities abroad.	• Electrical equipment owners are fully committed to support the project's objective on a sector wide basis • PCB materials are accumulated at storage locations in quantities allowing for international tenders. • PCB oil is drained/changed in transformers in ESM manner by trained personnel. Health of the workers is protected by PPE. • Basel convention notification documents are prepared and cleared for PCB waste export.
Component 4					
Outcome 1 Project results are evaluated, used in adaptive management and replicated	M&E and adaptive management applied to project in response to needs, mid-term evaluation findings with lessons learned extracted.	• No Monitoring and Evaluation system • No evaluation of project output and outcomes	• Monitoring and Evaluation system developed during year 1. • Mid-term-evaluation of project output and outcomes conducted with lessons learnt at 30 months of implementation. • Final evaluation report ready in the end of project	• Project document inception workshop report. • Independent mid-term evaluation report. • Final evaluation report	• Availability of reference material and progress reports • Cooperation of stakeholder agencies and other organizations.

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF)

GEF SECRETARIAT COMMENTS AT PIF

13. Has the cost-effectiveness sufficiently been demonstrated in project design?
Review comment: It is expected that UNDP will provide an estimate of disposal costs at CEO endorsement.

Responses: The currently prevailing disposal costs (without transportation and packaging) are provided in the list below:

(-) for pure PCB liquid, the costs are around US$ 1,200 per tonne;
(-) for PCB containing transformers, the costs are around US$ 1,500 per tonne;
(-) for PCB capacitors, the price is US$ 1,700 per tonne; and
(-) for PCB contaminated liquid, the costs are US$ 650 per tonne;

The packaging and transportation costs will be responsible for US$ 1,200 increase in the costs per tonne.

An advanced planning of international tenders may result in lower prices which will improve these cost-effectiveness thresholds.

Please refer to Section H for other cost-effectiveness considerations of the project approach.

ANNEX C: CONSULTANTS TO BE HIRED FOR THE PROJECT USING GEF RESOURCES

Position Titles	*$/ person week**	*Estimated person weeks***	*Tasks to be performed*
Project Management			
Local			
Project Manager (PM)	200	156	Overall supervision and direction for project activities. The function is closely linked with the Project Steering Committee's work and strategic guidance. The PM is responsible for reporting.
Program Assistant	175	140	Technical support to the PM and acts as deputy as required, along with undertaking detailed supervision and coordination of project activities
Administrative and Financial Assistant	100	140	Administrative and financial support to the project team to meet UNDP reporting requirements
Auditor	175	28	Provides an annual financial audit and final audit upon project closing for input into evaluations and reports.
Justification for Travel, if any: Local travel by the program manager and program assistants required within the country to undertake site visits and activity monitoring. The program manager will participate in information exchange visits in other Arab speaking countries and once to a licensed PCB disposal facility abroad.			
Technical Assistance			
Local			
Task Leader – Inventory	175	86	Coordinate and implement a comprehensive PCB inventory covering in service equipment, stockpiles/wastes (mapping of potentially contaminated sites should be planned).
Technical Expert – Inventory	175	86	Technical support for the detailed inventory development including field verification and sampling
Data Management Consultant	175	57	Design and implementation of a PCB database to register and track PCB inventory for use in regulatory and planning activities
Public Awareness Consultant	175	114	Coordinate general public awareness activities as well as those focused on particular stakeholders, including events, publications and web-site.
Regulatory Expert – PCB regulatory controls and waste classification	175	138	Develop and coordinate adoption of regulatory measures requiring the registration, labeling, status reporting and monitoring of PCB containing equipment in service and stockpiles/wastes. Import/ export issues and PCBs waste classification
Regulatory Expert – MAC Standards	175	46	Develop and coordinate adoption of MACs for PCBs in environmental media and human receptors consistent with international practice

Task Leader – ESM system	175	57	Develop (with Int. assistance) practical ESM system for the identification, handling, sampling, servicing and storage of PCB equipment for adoption and use by PCB holders, storage service providers, and inspection staff. Plan and supervise PCB storage upgrade.
Technical expert – ESM system	175	57	Support to the implementation of ESM system.
Technical Expert – PCB Phase Out Planning	175	87	Coordinate the development and adoption of a long term plan for the phase out of PCB containing equipment consistent with Convention requirements.
Task Leader – Transformer Decontamination and PCB materials disposal	175	87	Coordinate the assessment of options for decontamination of PCB contaminated equipment and supervision of a demonstration initiative. Coordinate the local collection, packaging and handling activities associated with PCB stockpile disposal.
Technical Expert – Transformer Decontamination and PCB materials disposal	175	87	Support for the demonstration PCB disposal initiative. Assist in coordinating the local collection, packaging and handling activities associated with PCB stockpile disposal.
International			
International Technical Support Expert	3,500[6]	20.5	Provide technical guidance on international practice relevant to all project Components and sub-components, act as a training resource and undertake environmental safeguards activities respecting operational aspects of the project, including integration of results into M&E activities.
International M&E Evaluation Consultant	3,500[11]	7.5	Provide independent technical evaluation at mid-term review and final evaluation as part of the M&E plan
Justification for Travel, if any: GEF financed travel in the amount of US$15,000 is separately budgeted for local consultant travel in the country to undertake assignments, and provide limited co-financing of information exchange visits with another country. UDNP cash co-financing will be used to cover most of this international travel. Travel for international consultants covers trips to the country and locally and is included in the weekly rates.			

* Provide dollar rate per person week. ** Total person weeks needed to carry out the tasks.

[6] Includes travel and DSA

ANNEX D: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS

A. EXPLAIN IF THE PPG OBJECTIVE HAS BEEN ACHIEVED THROUGH THE PPG ACTIVITIES UNDERTAKEN.

The project formulation support received from the GEF allowed increasing the knowledge on PCBs and PCB management practices in the country. Through direct contacts with electrical equipment owners, the PPG allowed spreading information on PCB associated risks and future project interventions to ensure better stakeholder buy-in in the project implementation process. The overall objectives of the PPG have been achieved in terms of better defining the scope of the project and the type of technical assistance required for the country.

B. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY:

The project formulation stage revealed the fact that the equipment cross-contamination will be the main challenge as compared to pure PCB equipment. The NIP data was reviewed and new findings indicated that there were substantial gaps in indentifying the inventory of the equipment which needs additional capacity strengthening at the national level. The low level of knowledge on PCB associated risks indicated that the current equipment handling practices may lead to the continuous releases for PCBs into the environment, especially at metal scrap yards. If not improved in line with international standards, such practices will continue. However, through PPG work, major stakeholders have expressed strong interest in addressing the situation which is confirmed by large co-finance resources leveraged from them during the project formulation stage.

C. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES AND THEIR IMPLEMENTATION STATUS IN THE TABLE BELOW:

Project Preparation Activities Approved	*Implementation Status*	*GEF Amount ($)*				*Co-financing ($)*
		Amount Approved	*Amount Spent Todate*	*Amount Committed*	*Uncommitted Amount**	
Local Experts	Ongoing	14,831	8,792	6,039	-	
International Experts	Ongoing	19,500	5,850	13,650	-	
Workshop, transportation and translation costs	Ongoing	15,669	9,998	5,671	-	
Total		50,000	24,640	25,360	-	

* Any uncommitted amounts should be returned to the GEF Trust Fund. This is not a physical transfer of money, but achieved through reporting and netting out from disbursement request to Trustee. Please indicate expected date of refund transaction to Trustee.