



**REQUEST FOR CEO ENDORSEMENT**  
**PROJECT TYPE: FULL-SIZED PROJECT**  
**TYPE OF TRUST FUND: GEF TRUST FUND**

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**PART I: PROJECT INFORMATION**

<b>Project Title: Disposal of PCB oils contained in transformers and disposal of capacitors containing PCB in Southern Africa</b>			
Country(ies):	Regional: Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, Tanzania, Zambia, Zimbabwe	GEF Project ID: <sup>1</sup>	5532
GEF Agency(ies):	UNEP	GEF Agency Project ID:	00805
Other Executing Partner(s):	Africa Institute (Basel Convention and Stockholm Convention regional centre) in cooperation with UNEP/DTIE	Submission Date:	
GEF Focal Area (s):	Persistent Organic Pollutants	Project Duration (Months)	60
Name of Parent Program (if applicable):		Project Agency Fee (\$):	732,450

**A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES<sup>2</sup>**

<b>Focal Area Objectives</b>	<b>Expected FA Outcomes</b>	<b>Expected FA Outputs</b>	<b>Trust Fund</b>	<b>Grant Amount (\$)</b>	<b>Cofinancing (\$)</b>
CHEM-1	Outcome 4: POPs waste prevented, managed, and disposed of, and POPs contaminated sites managed in an environmentally sound manner.	Output 4.1: PCB management plans under development and implementation.	GEFTF	7,710,000	32,576,319
Sub-Total				7,070,000	33,576,319
Project Management Cost			GEFTF	390,000	1,000,000
Project Evaluation Cost			GEFTF	250,000	85,000
<b>Total project costs</b>				<b>7,710,000</b>	<b>33,661,319</b>

<sup>1</sup> Project ID number remains the same as the assigned PIF number.

<sup>2</sup> When completing Table A, refer to the GEF Website, [Focal Area Results Framework](#) which is an *Excerpt from GEF 6 Programming Directions*.

## B. PROJECT DESCRIPTION SUMMARY

**Project Objective: To reduce environmental and human health risks from PCB releases through the demonstration of a regional approach to the introduction of cost-effective and socially acceptable environmentally sound management (ESM) of PCB oils, equipment and wastes held by electrical utilities and other PCB owners in participating countries.**

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
1. Enhancement and harmonization of national regulatory infrastructure	STA	National regulation and international requirements identified in 12 participating countries including infrastructure and enforcement capacities resulting in a harmonized approach for the environmentally sound management of PCB oils, equipment and wastes	1.1 National regulations in 12 countries on the ESM of PCB and PCB wastes in the context of the Stockholm and Basel Conventions reviewed	GEF TF	500,000	8,000,000
			1.2 Improved administrative capacity for controlling PCB in 12 participating countries			
2. Enhanced capacity for ESM of PCB containing equipment in service	STA	12 countries monitoring PCB containing equipment in service and tracking system established to follow until final phase out of PCB in electrical equipment	2.1 Detailed inventories of PCB containing oils and equipment held by utility companies in 12 participating countries developed (in use and in waste)	GEF TF	1,000,000	7,750,000
			2.2 Detailed inventories of PCB containing oils and equipment held by other sectors in 12 countries developed			
			2.3 Phase out plan endorsed by utility companies and other PCB containing equipment owners			
3. ESM of decommissioned PCB liquids and equipment	STA	PCB and PCB containing equipment disposed of in an environmentally	3.1 Training of utilities for collection, draining of transformers, and transport of PCB	GEF TF	4,720,000	13,191,000

		sound manner in accordance with the Stockholm Convention from 12 countries.	contaminated oil 3.2 4,300t of PCB oil, PCB contaminated oil, and PCB equipment, stored at national facilities 3.3 At least 1,000 capacitors containing PCB oil identified and collected for export 3.4 500t of Askeral transformers, capacitors, and PCB contaminated oil (concentrations >2000ppm) exported for destruction at a dedicated facility			
4. Stakeholder engagement and information exchange to facilitate dissemination of lessons learned, and development of regional capacity to finalize phase out of PCB and model developed for replication	STA	Stakeholders are aware of the need to phase out PCBs in an environmentally sound manner and best practices developed for implementing ESM for ongoing management of in-use transformers in project countries, and for subsequent projects	4.1 National and regional communications / outreach / awareness strategies developed and implemented 4.2 Lessons learnt framework developed for replication and extension at national level following adoption by national authorities	GEF TF	850,000	3,635,319
5. Monitoring and evaluation				GEF TF	250,000	85,000
Sub-Total					7,320,000	33,661,319
Project Management Cost				GEF TF	390,000	1,000,000
<b>Total Project Costs</b>					<b>7,710,000</b>	<b>33,661,319</b>

B. If Multi-Trust Fund project : PMC in this table should be the total and enter trust fund PMC breakdown here ( )

### C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include confirmed co-financing letters for the project with this form

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Amount (\$)
National Government	Botswana	In kind	1,081,440
	Lesotho	In kind	2,000,000
	Madagascar	In-kind	1,000,000
	Malawi	In-kind	1,000,000
	Mozambique (EDM – State-owned electrical utility)	Cash	1,000,000 <sup>3</sup>
	Namibia	In kind	4,000,370
	Seychelles	In kind	20,000
	Swaziland	In kind	1,016,400
	Tanzania	In kind	2,000,000
	Zambia	In kind	4,000,150
	Zimbabwe	In kind	1,000,000
Private Sector	Seychelles Public Utilities Corporation	In kind	20,959
	Madagascar Utility (Jiro Sy Rano Malagasy)	In kind	1,000,000
	Swaziland Electricity Company	Cash	1,692,000
	Nampower	In kind	1,000,000
	Zimbabwean Power Utility	In kind	1,000,000
	Lesotho Electricity Company	In-Kind	1,000,000
	Hidroelectrica de Cahora (Mozambique)	Cash	1,000,000
	Botswana Power Corporation	In-Kind	1,000,000
	Electricity Supply Corporation of Malawi	In-Kind	1,000,000
	Tanzania Electricity Supply Company	In-Kind	1,285,000
Others	South African Power Pool (SAPP), Harare	In kind	1,000,000
GEF Agency	UNEP	In-kind	250,000
IGOs	Africa Institute (Basel Convention and Stockholm Convention regional centre) in cooperation with UNEP/DTIE	In-kind	2,065,000
	Africa Institute (Basel Convention and Stockholm Convention regional centre) in cooperation with UNEP/DTIE	Cash	2,230,000
<b>Total Co-financing</b>			<b>33,661,319</b>

<sup>3</sup> Letter from Government of Mozambique owned electrical utility (EDM)

**D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS**

GEF Agency	Trust Fund	Country Name/Global	Focal Area	(in \$)		
				GEF Project Financing (a)	Agency Fee <sup>a)</sup> (b) <sup>2</sup>	Total (c)=a+b
UNEP	GEFTF	Regional	Persistent Organic Pollutants	7,710,000	732,450	8,442,450
<b>Total Grant Resources</b>				7,710,000	732,450	8,442,450

a ) Refer to the Fee Policy for GEF Partner Agencies

**E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:**

Component	Grant Amount (\$)	Cofinancing (\$)	Project Total (\$)
International Consultants	170,000	3,100,370	3,270,370
National/Local Consultants	1,060,000	17,512,990	18,572,990

**F. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? NO**

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund) in Annex D.

NO

## **PART II: PROJECT JUSTIFICATION**

### **A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF<sup>4</sup>**

#### **A.1 IS THE PROJECT CONSISTENT WITH THE NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSEMENTS UNDER RELEVANT CONVENTIONS, IF APPLICABLE (Yes /No ). IF YES, WHICH ONES AND HOW: NAPAS, NAPS, NBSAPS, ASGM NAPS, MIAS, NCS, TNAS, NCSA, NIPS, PRSPS, NPFE, BUR, ETC.**

All participating countries are parties to the Stockholm Convention, and with the exception of Namibia, have submitted their NIP. Namibia is currently finalizing it's NIP, and it is expected to be submitted before the beginning of this project.

The Table below provides an overview (status: September 2015\*) on the dates when the country became party to the Stockholm Convention and the date of the NIP submission.

<b>Name of Country</b>	<b>Date of Becoming a Party</b>	<b>Date of NIP Submission</b>
Botswana	28/10/2002	7/6/2011
Lesotho	23/1/2002	26/2/2009
Madagascar	18/11/2005	25/9/2008
Malawi	27/2/2009	15/2/2010
Mauritius	13/7/2004	11/10/2006
Mozambique	13/10/2005	12/8/2008
Namibia	24/6/2005	On-going
Seychelles	3/6/2008	26/4/2011
Swaziland	13/1/2006	1/6/2011
Tanzania	30/4/2004	12/6/2006
Zambia	7/7/2006	11/5/2009
Zimbabwe	1/3/2012	1/10/2014

\* Namibia submitted it's NIP in January 2015.

In all PCB inventories carried out during NIP development, electrical utilities are recognised as owning or holding the bulk of PCB contaminated oils and PCB equipment and wastes, and so represent the principal stakeholders in action plans to address the PCB-related obligations of the Stockholm Convention.

PCB action plans included in the NIPs, recognise that the implementation of ESM for PCB oils, equipment and wastes needs to be supported by an effective regulatory and administrative framework and by suitable financial mechanisms to ensure that ESM of PCB oils, equipment and wastes is sustainable. Furthermore, they recognise that the detailed planning of phase-out and destruction programmes focused on the priority sector requires

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<sup>4</sup> For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter “NA” after the respective question.

more detailed inventory work of the kind set out in guidance prepared by the Secretariat of the Basel Convention.

Project design and activity planning has taken these national PCB action plans as a starting point, and the design aims to support and strengthen them. This project's proposed approach and the PCB action plans should consequently be considered as mutually supportive. Project design has been undertaken through a participatory process including a regional workshop held in Johannesburg in May 2011 for national focal points for the Stockholm Convention and utility representatives from all countries; and a regional meeting of representatives of the electrical utilities of ten participating countries (SAPP meeting at Victoria Falls, February 2011), which served to steer the project preparation, to ensure that the project meets national priorities, and to endorse its interim products. In October 2014, an addition PPG workshop convened in Pretoria, South Africa, to reinstate project design activities, and update stakeholders on the PPG timeline, and to confirm the approach remained consistent with country priorities. In addition, country visits were undertaken to Mozambique, Malawi, Tanzania, Botswana and Zambia, and consultations convened with government and utility representatives. Details of these missions are included in Appendix 10. Project preparation was also discussed at the 45<sup>th</sup> annual SAPP meeting held in Gaborone, Botswana from Sep 1-3, 2015, the report of this consultation is included as Appendix 11.

## **A.2. GEF FOCAL AREA<sup>5</sup> AND/OR FUND(S) STRATEGIES, ELIGIBILITY CRITERIA AND PRIORITIES.**

The project and its proposed activities are consistent with the GEF-5 Chemicals Results Frameworks' goal "to promote the sound management of chemicals throughout their life-cycle in ways that lead to the minimizations of significant adverse effects on human health and the global environment."

In particular, the project will contribute to Objective 1 "Phase Out POPs and Reduce POPs Releases" through the following interventions:

GEFV Strategy Indicator: Outcome 1.4: POPs waste prevented, managed and disposed of; Indicator 1.4.1 Amount of PCBs and PCB-related wastes disposed of, or decontaminated; measured in tons as recorded in the POPs tracking tool.

GEFV Strategy Indicator: Outcome 1.5: Country capacity built to effectively phase out and reduce releases of POPs; Indicator 1.5.2 Progress in developing and implementing a legislative and regulatory framework for environmentally sound management of POPs, and for the sound management of chemicals in general, as recorded through the POPs tracking tool.

Participating countries are all eligible to receive GEF funding as per the criteria set by the COP, that is: being a Party to the Stockholm Convention; and having submitted the NIP to the SC Secretariat. In the case of Namibia, the NIP is expected to reach the SC Secretariat soon.

## **A.3 THE GEF AGENCY'S COMPARATIVE ADVANTAGE:**

UNEP is working within its comparative advantage in implementing this project. The project seeks to demonstrate an innovative partnership approach to deal with PCB wastes where current market practices are failing to provide environmentally sound disposal options for GEF recipient countries that have only relatively small quantities of wastes.

UNEP will use its convening power and project management skills as a GEF IA to support the development, supervise and monitor the initial operation of a partnership between the public electrical utilities, that hold the bulk of regional PCB wastes, and private sector waste management companies that will provide the services needed to insure the environmentally sound destruction of the wastes. The project seeks to stimulate private

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<sup>5</sup> For biodiversity projects, please describe which Aichi Target(s) the project will directly contribute to and what indicators will be used to track progress towards achieving these specific Aichi target(s).

sector investment through (i) the identification and organization of waste streams that need environmentally sound treatment and disposal; (ii) the provision of funding to the utilities to meet the incremental costs of diverting their wastes to environmentally sound facilities.

It is believed that such an arrangement is innovative and sustainable when coupled with the regulatory, capacity building, scientific and technical assessment work that we also propose in the project. This project is envisaged as a potential model that could be replicated in other regions with similar problems and the project will develop lessons and best practice recommendations.

UNEP is already implementing the project “Demonstration of a regional approach to environmentally sound management of PCB liquid wastes and transformers and capacitors containing PCBs” in the West African region, and is currently developing a similar project in Cameroon. All projects will establish and maintain close contacts during the execution phase in order to streamline interventions and make use of ‘lessons learned’ and experience gained.

UNEP’s comparative advantage for the GEF is related to its being the only United Nations organization with a General Assembly mandate to co-ordinate the work of the United Nations in the area of environment and whose core business is the environment. UNEP’s comparative strength is in providing the GEF with a range of relevant experiences, proof of concept, testing of ideas, and the best available science and knowledge upon which it can base its investments. It also serves as the Secretariat to three of the MEAs, for which GEF is the/a financial mechanism. UNEP’s comparative advantage also includes its ability to serve as a broker in multi-stakeholder consultations.

UNEP is the primary driving force in the UN system for international activities related to the sound management of chemicals. The aim is to promote chemical safety and provide countries with access to information on toxic chemicals. UNEP promotes chemical safety by providing policy advice, technical guidance and capacity building to developing countries and those with economies in transition, including activities on chemicals related to the implementation of the Strategic Approach to International Chemicals Management (SAICM).

The “Chemicals and Wastes” sub-programme of the Division of Technology, Industry and Economics (DTIE/Chemicals Branch) assists countries and regions in managing, within a life-cycle approach, chemical substances and waste that have potential to cause adverse impact on environment and human health. This project is in line with the Chemicals and Wastes objective, as included in UNEP’s Medium Term Strategy (2014-2017) “to promote a transition among countries to the sound management of chemicals and waste to minimize impacts on the environment and human health.”

The Africa Institute for the Environmentally Sound Management of Hazardous and other Wastes (AIMHW) (Stockholm Convention regional centre for capacity building and the transfer of technology and Basel Convention Regional Centre for English-speaking countries in Africa) will be the executing agency for this project and be managing the day-to-day implementation of the project including the coordination of the activities at national level, with the private sector and report to the implementing agency UNEP/GEF Coordination at Chemicals Branch in Nairobi.

UNEP’s global GEF-related specialists and support staff (based in Nairobi HQ), as well as UNEP’s Regional Office staff will be available to support and facilitate the correct and cost-effective implementation of this important project.

#### **A.4. THE BASELINE AND ANY ASSOCIATED BASELINE PROJECTS:**

##### **Global environmental problems, root causes and barriers that need to be addressed**

Approximately 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. Once PCBs are released into the



environment they do not break down, but travel over long distances and continue to pose health risks to humans<sup>6</sup>.

The Stockholm Convention requires that all equipment containing concentrations of PCB above 0.05% be phased out of equipment by 2025 and all PCB be subject to ESM for final disposal by 2028. This project aims to contribute to attaining this Convention requirement, through organizing the countries in Southern Africa, and achieving the ESM of PCB and destruction of the POP content in the oil.

Currently owners and holders of PCB equipment are hampered in their efforts to improve management standards because the relatively small market for such work in each country inhibits local investment by competent service providers. Access to international service provision is both logistically difficult and prohibitively expensive. Current local waste management of PCB equipment results in uncontrolled PCB releases from unprotected metal reclamation or, worse, the selling of PCB oils for other (immediate) uses. Such uses pose significant health and environmental threats and are not permitted under both the Stockholm Convention and the Basel Convention. This project aims to address these barriers.

### **Baseline scenario and any associated baseline projects**

The national and regional picture on the amount and location of equipment containing or contaminated with PCB remains unclear. This is despite the fact that all countries participating in this project have finalized their national implementation plan (NIP) under the Stockholm Convention. An assessment of national PCB inventory data gathered from the NIPs indicates that countries participating in this project hold between 1,000 to 2,500 transformers containing PCB oil with an estimated total weight of between 1,000 and 2,500 tonnes. Of these, an estimated 400 and 700 tonnes is pure PCB oil. In addition, the assessment estimates the presence of more than 10,000 transformers in which the dielectric fluid is contaminated by PCB at a level greater than 0.05% PCB; thus, above the low POP content that is laid down in the Basel Technical Guidelines on POPs as Waste. The estimated total weight of these transformers is 10,000 tonnes, including 2,000 tonnes of contaminated oils. The electrical utilities are estimated to hold approximately 80% of this equipment. The NIPs also indicate that:

1. participating countries do not, for the most part, have specific regulations or administrative mechanisms governing PCB oils, equipment and wastes (and there is a lack of a purchasing policy with regards to second hand transformers);
2. the electrical utilities and other owners of PCB equipment currently lack the means to apply ESM practices to PCB equipment in service, in storage or out of service;
3. despite awareness-raising efforts during NIP preparation, owners of PCB oils, equipment and wastes are frequently unaware of the threats that PCB pose to human health and the environment;
4. infrastructure for the environmentally sound and safe storage and destruction is not available in participating countries;
5. there are no systematic investment mechanisms to support the ESM of PCB wastes;
6. the preliminary national inventories available as a result of NIP development are not sufficiently detailed for the purposes of phase-out and disposal planning and detailed inventories of equipment will be needed at enterprise level in the early stages of the full project.

Currently PCBs are being released into the environment both at unprotected maintenance and storage sites and during waste management operations concentrating on metals recovery. Furthermore, PCB fluids from transformers are being mixed with dielectric mineral oils during maintenance and subsequently reused in previously uncontaminated transformers, thereby cross-contaminating, potentially, the whole transformer population.

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<sup>6</sup> Stockholm Convention on Persistent Organic Pollutants, Website: <http://chm.pops.int/Implementation/PCBs/Overview/tabid/273/Default.aspx> (Accessed: 29 January 2015)

Extensive work was completed as part of the Project Preparation Grant (PPG) phase of this project to develop a more reliable and current picture of total amount of PCB contaminated equipment, and PCB equipment (capacitors, Askarel filled transformers etc). This involved country visits to Mozambique, Malawi, Tanzania, Botswana, and Zambia in July 2015 (see mission reports Appendix 10). These visits included consultations with Government and utility representatives. Additional baselining was also undertaken through telephone and email consultation with other participating countries, as the PPG budget did not allow for visits to all countries, nor for individual transformer testing.

PPG activities resulted in a strengthened baseline, through the acquisition of data on PCB contaminated oil, and PCB contaminated equipment, and where this did not exist, on the size of the distribution network. In cases where the size of the distribution network was used, assumptions were then made in regard to: the weight of each transformer (1 tonne unless otherwise specified); the average weight of oil in each transformer (25% of total transformer weight); and the number of transformers containing PCB contaminated oil (10% of the total identified). The results of this additional baselining are presented in detail in Appendix 9, and summarized in Table 1 below. These assumptions are a commonly accepted method to estimate total PCB contaminated equipment based on extrapolation of data from countries where similar exercises have been completed in the past.

**TABLE 1: ESTIMATED QUANTITIES OF PCBs IN PARTICIPATING COUNTRIES:**

	NIP Inventory	NIP Data PCB	Additional Baseline Data Gathered During PPG	PCB oil (askarel) (te)	PCB Capac (te)	PCB Waste Oil (te)	Total (te) for disposal
Botswana	YES, Clor-N-Oil, limited	500 pcs	Yes	0	0	450	450
Lesotho	YES, admin. Only	634 pcs	Yes	0	0	50	50
Madagascar	YES, Clor-N-Oil, limited	52 pcs	Yes	0	0	350	350
Malawi	YES, admin. Only		Yes	0	0	125	125
Mauritius	YES, Clor-N-Oil, GC-MS, limited	70 pcs, 50 t total, 19 t oil	Yes			50	50
Mozambique	YES, admin. Only		Yes			300	300
Namibia	YES, L2000, limited	8+1 pcs transf.	Yes	0	0	1375	1375
Seychelles	YES, Clor-N-Oil, limited	8 pcs, 4,8 t	Yes	0	0,2	50	50
Swaziland	YES, Clor-N-Oil, GC-MS, limited	572 pcs transf., 514 t oil	Yes			200	200
Tanzania	YES, admin. Only	418 pcs, 273 t	Yes	0	0,32	268	268
Zambia	YES	76 pcs, 2,7 t oil, 57 t soil	Yes	89	64	392	545
Zimbabwe	YES, Clor-N-Oil, limited	39 pcs	YES	0	5,7	481	486
<b>Total (t)</b>				<b>89</b>	<b>70</b>	<b>4091</b>	<b>4249</b>

## Proposed alternative scenario

The project will complete inventory and PCB disposal activities in SADC countries. Countries are at varied stages of PCB management, and to ensure the project is not delayed, the project will take a two-tiered approach. Disposal activities will include all countries, but activities will not be delayed by countries who fail to complete the detailed inventory phase according to the project workplan. In such cases, these countries will enter the second-tier, with a focus on completing a robust inventory, and safeguarding, with disposal activities for second-tier countries to be the focus of a follow up initiative.

The disposal approach will involve: retrofilling and decontamination at the national level, including transformer draining at utility level, and transporting PCB contaminated oil (<2,000ppm) to a national storage site for dechlorination using a mobile unit; and, export of a limited amount (estimated at 500te) of PCB contaminated dielectric fluid (>2,000ppm PCB) and solid waste (including askaral transformer casings and capacitors) for disposal. This approach is detailed in the **Section B3** (Cost Effectiveness).

## Project component 1: Enhancement and harmonization of national regulatory infrastructure and sustainable mechanisms

### Expected outcome:

National regulation and international requirements identified in 12 participating countries including infrastructure and enforcement capacities resulting in a regionally harmonized approach for the environmentally sound management of PCB oils, equipment and wastes.

### Expected output:

1.1 National regulations in 12 countries on the ESM of PCB and PCB wastes in the context of the Stockholm and Basel Conventions reviewed and brought to a common standard.

### Planned activities:

- Draft regulation and Guidance documents developed and submitted for adoption at the regional level:  
The first project activity is to facilitate the regional cooperation to develop and agree upon the relevant Guidance documents for the ESM of PCB. The Guidance documents will be based on existing manuals developed by Basel Convention, but will be adapted to the specifics of the region, and include appropriate tools: for transboundary cooperation, involvement of the private sector (service providers), roles of control bodies, enforcement strategies, and PCB identification. Where necessary, relevant guidance documents will need to be translated into French and Portuguese to allow their effective application.
- 12 countries submit for adoption draft national regulation, with minimum requirements of Stockholm and Basel and Rotterdam Conventions, supported by Guidance documents for different aspects of ESM of PCB:  
The project will assist countries with the relevant legislative instruments to be developed and adopted. Draft PCB Regulation will include the minimum requirements of the Stockholm and Basel and Rotterdam Conventions, and cover all phases of PCB lifecycle, and all stakeholders. Due to the period of time required to adopt and implement a PCB legal framework, being longer than the project lifetime, the project will focus on interim short-term measures, such as a decree, which can be established directly by the competent authority. Each participating country will then be responsible to transpose the draft PCB regulation into the country specific legislative instrument, which could be standalone, or be widen

to be included in, or create a base for more complex chemicals management law and subsequent ordinances.

Expected output:

1.2 Improved administrative capacity for controlling PCB in 12 participating countries.

Planned activities:

- Inspectors and customs staff trained:

Specific training activities will be deployed for inspectors and customs staff to be able to implement the control measures in the participating countries. Such a regional training will cover at least application of the developed and agreed PCB Guidance documents, as well as specifics of identification of PCB contaminated material and waste, measures to identify of inappropriate refilling and recycling activities, as well as transboundary movement of second-hand PCB contaminated equipment. Training will be also include training on national database of PCB contaminated equipment as well as techniques for PCB identification, labelling and proper storage and basic analytical techniques to be used for the PCB content verification.

Training activities will use “training-of-trainers” methodology and involve two inspectors and two customs officers from each of the participating countries. The training will be organized as a regional activity where cooperation of partners from the participating countries will have possibility to share their experiences and views for the best applicability of the PCB ESM especially enforcement measures.

- Responsible persons in power, transport and distribution electricity supply utilities and other stakeholders designated:

Electricity supply utilities participating in the project will designate the coordinator who will be a contact point and represent the electricity supply utility in the coordination meetings and relevant national and regional project activities.

- Pilot National database of PCB contaminated equipment established at regional level and replicated in 12 participating countries:

Regionally harmonized, national databases should be used for recording of an inventory activities as well as control measures. PCB contaminated equipment database will be a clearly defined legislative duty for PCB owners, maintained by the appointed governmental authority. The database will include the identification details of the respective equipment, location, owner, PCB contents, classification (labelling), actual usage and storage conditions and phase out plan.

The database will also contain all fabrication data concerning suspected and controlled equipment and PCB oil stored in drums, and PCB contaminated wastes.

National databases will be regionally harmonized (in terms of format), and regionally accessible, providing a reliable source of information for PCB management and planning of disposal activities.

**Project component 2: Enhanced capacity for ESM of PCB containing equipment in service.**

Expected outcome:

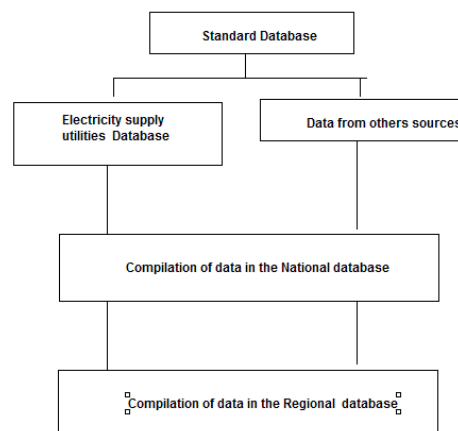
12 countries monitoring PCB containing equipment in service and tracking system established to follow until final phase out of PCB in electrical equipment.

Expected output:

2.1 Detailed inventories of PCB containing oils and equipment held by utility companies in 12 participating countries developed (in use and in waste).

Planned activities:

- Templates for PCB inventories and tracking system developed, adopted and distributed:  
Adopt templates developed in Component one for database for the management of in-use transformers.
- Training for identification and quantification provided:  
Identification and quantification of PCB containing equipment and associated owners is a key aspect of the inventory and control activities. Training will reflect the guidance documents developed in the project component 1. In the initial project activities it will be discussed and agreed preferable strategies for PCB analysis – in situ and laboratory methods.  
Training will be organized in each participating country, or in neighbouring countries, with the aim of training four attendees per participating country. The practical part of the training will be provided in small groups for up to 12 attendees. Attendees will represent governmental officials as well as electricity supply utilities and representatives of other private PCB owners.
- Inventory verification plans developed and adopted:  
Inventory verification activities will be jointly done by authorities (through a national consultant) and private sector – electricity supply companies and other PCB owners. Country wide PCB inventory and updating report every five years is a duty which every Party to the Stockholm Convention needs to achieve. The project aims to develop capacity at national level to complete the inventory and to factor in any national phase out plans. Inventory verification plans will be in line with guidance documents and inventory forms will be used to collect the data for the PCB contaminated equipment database.
- Collection and analysis of oil samples:  
Power utility companies will collect samples. Project has budgeted for an average of 500 samples per country, but the number of samples collected per country will be adjusted based on annual production of electricity (which is an indicator of amount of equipment).  
Analyses will be performed according to the results of feasibility study by certified laboratories, selected by open tender.
- Information held by stakeholders included in the national database:  
All relevant information will be documented by each electricity company in the national database of PCB contaminated equipment and available for regional phase-out and disposal planning.



## 2.2 Detailed inventories of PCB containing equipment held by other sectors in 12 countries developed.

### Planned activities:

- Inventory verification plans developed and adopted:

Inventory activities will be jointly done by authorities and private sector other than power supply utilities – PCB owners. Priority samples will be collected and analysed for the PCB content. All data from inventory preparatory phase to collection and analysis will be documented and used for the phase-out planning.

- Collection and analysis of samples:

Based on country specific priority setting, following inventory verification plans, PCB owners will collect relevant number of samples. Project has budgeted for an additional 150 samples per country from the non-utilities sectors. This number will be adjusted based on the number of PCB owners per country. Analyses will be performed by the certified laboratories.

- Information held by stakeholders included in the national database:

All relevant information will be documented by each electricity company in the national database of PCB contaminated equipment and available for regional phase-out and disposal planning.

## 2.3 Phase out plan proposed and endorsed by utility companies and other PCB containing equipment owners;

### Planned activities:

- The phase-out plan adopted at the national level by utility companies and other PCB containing equipment owners:

Once the inventory data has been analysed a detailed disposal plan will be developed based on the relative needs of the countries in the region. The plan will be presented to governments for adoption at the national level by responsible governmental body, power utility companies and other PCB containing equipment owners. The PCB owners will be required to provide signed confirmation of PCB wastes availability for the disposal in time and quantities recorded in the database. Specific contracts will be negotiated with every PCB owner participating in the project disposal activities.

Depending on the amount of PCB equipment identified by the inventory there will be a need to develop a plan beyond the scope of this project. The plan will need to utilise the capacity developed under this project to ensure PCB equipment is managed in accordance with the new national regulations developed under Component 1 and that there is no trade in PCB contaminated oils and / or contaminated equipment. Sign up to the plan will be needed from the power utilities at national and regional level and the project will work with each country to develop future resource mobilisation plans to support the phase out plan and subsequent disposal of the PCB contaminated items.

A study will be completed to quantify the energy efficiency and climate change mitigation benefits of phase out of PCB equipment and replacement by non-PCB alternatives. This study will be used to inform utilities of the cost benefit analysis of a shift from old equipment to newer, more efficient and more environmentally sound alternatives. This will allow economic data on the benefits of removal of old equipment to be made available to utilities and governments as part of their overall cost benefit analysis and business planning into the future. The cost saving and improved efficiency / generation / distribution data will support the existing compliance needs of the project. It is anticipated that the cost of replacement can be framed in terms of cost savings from improved energy efficiency and potential payback of investment as an additional driver to promote an accelerated phase out of equipment and as a potential economic incentive to development banks and other financial institutions.

### **Project component 3: Regional mechanism for ESM of decommissioned and phased out PCB liquids and equipment.**

Expected outcome: PCB and PCB containing equipment disposed of in an environmentally sound manner in accordance with the Stockholm Convention from 12 countries, and verified through independent monitoring.

Expected output:

#### 3.1 Training of utilities for collection, draining and transport of PCB contaminated transformers.

Planned activities:

- Training of utility personnel, and procedures in place to perform collection, draining and transport of PCB:

Due to regular maintenance activities, qualified personnel are available for manipulation of electric devices based on internal rules and procedures. This personnel will be additionally trained for the PCB handling. To adequately manage tasks linked to the PCB contaminated equipment identification, labelling, collection and transport, specific measures have to be implemented by the companies reflecting legal requirements and best practices. Facility for interim storage of PCB wastes will be established at national level and will be available before the collection and disposal phase begins. The interim storage site should not necessarily be in the ownership of the power supply utility. It is possible to select licence service provider(s) which could take responsibility for collection and transport of PCB wastes.

Obligations of the PCB Wastes Owner:

- to cooperate in terms of technical support and PCB waste preparation including provision of manpower and technical staff;
- to provide a PCB disposal plan;
- to provide all necessary information/certificates to enable arrangement of all necessary clearances for approval of statutory authorities (waste transportation permits, hazardous waste manifest, documentation required by Basel convention, etc.).
- Companies licenced to collect, drain and transport of PCB hazardous waste available in the region:

The project will support the local capabilities for hazardous wastes management. Collaboration with local businesses will at first be through the promotion of local services for the environmentally sound collection and transport of PCB containing equipment and secondly, by promoting the recovery of decontaminated, scrap metal by local businesses. This activity is closely related to the regional approach and licensing procedures for the service providers so these could be accepted also in countries of the region.

#### 3.2 Four thousand three hundred metric tonnes (4,300t) of PCB oil, PCB contaminated oil, and PCB equipment, stored at national facilities

Planned activities:

- At least 4,300t of PCB oil, PCB contaminated oil, drained and stored, together with PCB equipment (Askarel transformers and capacitors) at national facilities in environmentally sound manner.

The environmentally sound draining of PCB contaminated oil will be done at utility level by trained personnel. Repacked PCB contaminated oil will then be transported to national storage facilities for dechlorination, or in the case of pure PCB oil, export for disposal. Information obtained during the PPG phase indicates that several utilities have developed temporary storage for PCB contaminated transformers. These include CEC and ZESCO (Zambia), and SEC (Swaziland). These facilities will be utilized for project activities with required compliance works related to PCB storage

### 3.3 At least 1,000 capacitors containing PCB oil identified and collected for export

#### Planned activities:

- At least 1,000 capacitors collected and stored:

The environmentally sound collection, transport and interim storage of PCB capacitors should be preferably done locally (country should have at least one place secured for manipulation and interim storage of PCB wastes) by licensed service providers.

### 3.4 500t of Askeral transformers, capacitors, and PCB contaminated oil (concentrations >2000ppm) exported for destruction at a dedicated facility.

#### Planned activities:

- 500t of PCB oil and PCB equipment exported for destruction (incl. PCB oil in drums, highly contaminated carcasses which could not be handled on site, and capacitors):

Destruction will be completed in a certified dedicated facility selected through international tender, and shipment will be organized from suitable harbour(s).

- Destruction in certified dedicated facility (-ies) in a region and overseas:

Destruction will be completed by licensed disposal facilities. A site visit will be undertaken to check if the disposal process is in compliance with the national regulation and international standards. For example, the monitoring of dioxin, water treatment effluent, sludge, ashes. Selection and contracting for the final disposal will be done in consultation with UNEP through international tender procedure.

## **Project component 4: Stakeholder engagement and information exchange to facilitate dissemination of lessons learned, and development of regional capacity to finalize phase out of PCB and model developed for replication.**

#### Expected outcome:

Stakeholders are aware of the need to phase out PCBs in an environmentally sound manner and best practices developed for implementing ESM for ongoing management of in-use transformers in project countries, and for subsequent projects.

#### Expected output:

### 4.1 National and regional communications / outreach / awareness strategies developed and implemented.

#### Planned activities:

- Development of regional communications strategies.
- Development of national communications strategies.



- Development of national risk analysis for vulnerable groups and gender analysis.
- Risk communications and risk reduction awareness programs implemented at regional and national level.

Output relies largely on the identification of national CSO / NGO partners with capacity to implement project activities at national level. The Output aims to gather vulnerable group and gender specific risk data on which regional and national communications / awareness programs will be developed.

4.2. Lessons learnt framework developed for replication and extension at national level following adoption by national authorities.

Planned activities:

- Development of project lessons learned and key experiences report on an annual basis for review by the project SC and delivery to national authorities.
- Project website and other outreach / communications tools developed and maintained (linked to, or hosted within SAPP Website) as part of Output 4.1. above.
- Best practices for introduction of ESM identified, documented and disseminated (linked to existing guidance, or update of <http://www.sapp.co.zw/docs/SAPP%20PCB%20Guidelines%20draft%20Final.doc%20Jan%202008.pdf>)
- Annual Regional workshop held in conjunction with PSC meeting to include participation of private sector, regional agencies and regional associations and other stakeholders to validate project result.
- Best practices for introduction of ESM identified, documented and disseminated to participants, other stakeholders and Parties of the Stockholm Convention

**A. 5. INCREMENTAL /ADDITIONAL COST REASONING: DESCRIBE THE INCREMENTAL (GEF TRUST FUND) OR ADDITIONAL (LDCF/SCCF) ACTIVITIES REQUESTED FOR GEF/LDCF/SCCF FINANCING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS (GEF TRUST FUND) OR ASSOCIATED ADAPTATION BENEFITS (LDCF/SCCF) TO BE DELIVERED BY THE PROJECT:**

**Incremental cost reasoning**

Without this GEF-assisted project, PCB equipment will continue to be managed within the same operational scheme as non-PCB equipment giving rise to widespread cross contamination and the continuing threats posed by equipment at locations recognized in Annex A part II of the Stockholm Convention as presenting particular risks. Obsolete equipment will continue to be stored on unprotected sites and to be disposed of to local waste handlers, principally for metal reclamation. PCB releases will continue particularly from the sale, by local waste management enterprises, of oils for open use in contravention of the Stockholm and Basel Conventions.

GEF finance will be used to deliver local and global environment benefits, through the reduction of PCB releases, and consequently, the threat to the both human health and the environment. In Component 1 GEF funding will be used to revise and regionally harmonize PCB regulations and provide comprehensive training on the regulatory reforms and PCB management. In Component 2 GEF finance will lead to improved management of in-service transformers. In Component 3, GEF finance will be used to dechlorinate PCB contaminated oil, and to export highly contaminated oil for ESM in a dedicated facility.

**A.6 RISKS, INCLUDING CLIMATE CHANGE, POTENTIAL SOCIAL AND ENVIRONMENTAL RISKS THAT MIGHT PREVENT THE PROJECT OBJECTIVES FROM BEING ACHIEVED, AND MEASURES THAT ADDRESS THESE RISKS:**

RISK	RISK RANKING	MITIGATION MEASURES
Lack of national government engagement	Low - medium	Stockholm Convention national focal points have confirmed their strong interest in the project, which is in line with national PCB priorities as set out in countries' respective NIPs. Focal points will be the key national government representatives in this project, and their ongoing engagement with and commitment to the project, is critical to its success. Focal points have been closely consulted during project development and will be members of national steering committees, playing instrumental roles in coordinating actions at the national level between governments and electrical utilities. In some countries, national coordinators and electrical facilities have already instigated project-prompted actions to improve PCB management, restricting sales of wastes. To ensure ongoing engagement the Africa Institute will continue communicating regularly with focal points throughout project execution, helping to ensure project activities are "owned" by focal points.
In-service transformers identified as PCB contaminated equipment	Medium	In cases where an in-service transformers is find to contain PCB oil (>2,000ppm), the project will work closely with utilities to decommission the transformer, within the life of the project. Utilities have committed significant co-finance to the project, this co-finance is for both staff time, and the cost of replacing transformers. In instances where the transformer cannot be decommissioned and replaced within the lifespan of the project, the transformer will be included in the PCB phase-out plan, with an agreed timeframe for taking the transformer offline, and for safeguarding the oil, and transformer casing. Utilities will be strongly encouraged and incentivised however, by the opportunity to have the disposal costs covered as part of the project.
Electrical utilities, major owners of PCB equipment, do not engage in project (due to high cost of transformer replacement)	Low	The electricity supply industry is the principal owner and holder of PCB oils and equipment. The decisions of the industry players regarding the disposal of PCB wastes strongly influences environment and human health outcomes. The preparatory phase of this project has raised the awareness of industry obligations under the Stockholm and Basel Conventions, and engaged public electrical utilities in project design. A regional meeting with these utilities confirmed their strong interest and agreement in principle to participate in the project. A meeting with the SAPP has confirmed its keen interest to play a leading role for the industry. To ensure ongoing engagement the Africa Institute will continue communicating regularly with electrical utilities throughout project execution, helping to ensure project activities are "owned" by electrical utilities, as well as national governments.

Private sector service provider not identified/interested	Low	<p>This project is predicated on (i) encouraging common efforts to build a market of sufficient size to attract investment by a service provider; (ii) removing equipment from service only at end of life to remove consideration of residual operating value.</p> <p>Both electrical utilities owning PCB wastes and the service industries have been engaged during project design. To assess the significance of this risk, a call for expressions of interest, and more detailed discussions with private sector service providers, were undertaken at PIF stage. This resulted in several business propositions for consideration. A private company in Zambia has already shown its willingness to eradicate PCB by shipping PCB waste to Europe for destruction.</p>
Handling, storage, transport and treatment of PCB wastes leads to environmental releases	Low-Medium	The project includes provision for environmental safeguards including through independent monitoring of project activities by an independent third party. In addition, collection, temporary storage and transportation operations in Component 3 will be governed by disposal plans based on international guidance standards. Personnel handling PCB will have received training to operate according to international standards.
Impacts of climate change on the project	Low	According to the findings of the fourth Intergovernmental Panel on Climate Change (IPCC) Assessment report, the possible impacts of climate change on participating countries are variable. To mitigate climate risks the project will ensure that PCBs are not stockpiled within the vicinity of coastal areas susceptible to storm surge, and that storage facilities are located on all-weather roads, thereby mitigating the risk of the project being adversely affected by heavy rain.

**A.7. OUTLINE THE COORDINATION WITH OTHER RELEVANT GEF-FINANCED AND OTHER INITIATIVES:**

The project will coordinate with the following GEF-financed initiatives:

- Demonstration of a Regional Approach to Environmentally Sound Management of PCB Liquid Wastes and Transformers and Capacitors Containing PCBs:** This regional project is being implemented by UNEP in Benin, Burkina Faso, Chad, DR Congo, Cote d’Ivoire, Djibouti, Guinea, Guinea Bissau, Mali, Mauritania, Morocco, Niger, Senegal and Togo. Appropriate linkages will be made with the key project partners. UNEP will ensure that all information produced under the West African project is made available to this project. This includes PCB guidance documents developed, which will be adapted and adopted for use in SADC. To facilitate cross-project learning, the Africa Institute project team will invited attend the West African regional project Steering Committee Meeting. The pool of experts used on the West African project, will also be contacted and invited to express interest in the execution of the SADC project. Experts from the West African project were utilized in the development of the SADC project, and the mid-term evaluation also informed the project design. As such, key lessons learned from the West African project have been incorporated into the design of this project. These include, placing obligations on PCB holders to benefit from project funding, including: adoption of PCB regulation framework; adoption of PCB ESM by electrical companies; and adoption of disposal plans.

- **The UNEP Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC):** Based in Spain, is a centre for international cooperation with Mediterranean countries on development and innovation in the production sector and civil society, based on more sustainable consumption and production models. The Centre develops its activity under the Mediterranean Action Plan (MAP) for the protection and development of the Mediterranean basin. The Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem (MedPartnership) is a collective effort of regional, international, non governmental organizations and countries sharing the Mediterranean Sea, towards the protection of the marine and coastal environment of the Mediterranean. The MedPartnership is being led by UNEP/MAP and the World Bank and is financially supported by the Global Environment Facility (GEF), and other donors. MedPartnership includes a component on PCBs – specifically focused on the environmentally sound management of equipment, stocks and wastes containing or contaminated by PCBs in national electricity companies of Mediterranean countries. Lessons will be drawn from the disposal experiences of this project, and guidance documents developed for PCBs owners will also be adapted for the SADC region.
- **PCB Reduction in Cameroon through the use of local expertise and the development of national capacities:** This project is currently being finalized and will be implemented by UNEP. UNEP will ensure that all information produced under the Cameroon project is made available for use in the SADC region, and the executing agencies will be encouraged to consult each other throughout project execution.

In terms of other relevant initiatives, many of the electrical utilities of countries participating in the project are members of the Southern Africa Power Pool (SAPP), a regional organisation established to harmonise network operations in order to facilitate the transfer of electrical power between members in order to balance supply and demand at the regional level. The project seeks to build on this existing regional structure, reinforcing management standards related to network equipment providing both environmental and operational gains.

The SAPP has estimated the total installed electrical capacity as follows:

Country Utility	Installed Electricity Capacity (MW)
Angola	1,187
Botswana	202
Lesotho	72
Madagascar	233
Malawi	287
Mauritius	660
Mozambique	2,308
Namibia	393
Seychelles	56.4
Swaziland	70
Tanzania	1,008
Zambia	1,812
Zimbabwe	2,045
Total	10,277

## B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

**B.1 WILL PROJECT DESIGN INCLUDE THE PARTICIPATION OF RELEVANT STAKEHOLDERS FROM CIVIL SOCIETY AND INDIGENOUS PEOPLE? (YES  /NO  ). IF YES, IDENTIFY KEY STAKEHOLDERS AND BRIEFLY DESCRIBE HOW THEY WILL BE ENGAGED IN PROJECT DESIGN/PREPARATION:.**

Project stakeholders can be divided into four distinct groups: Competent authorities; PCB owners/holders; technical operators ; and civil society. These groups, and their current roles in PCB management are outlined in Table 2 below:

**Table 2:** Outline of stakeholders and current roles in PCB management

Stakeholder Group	Stakeholder	Current involvement	Current specific activities/risks
Competent authorities	Ministry of Environment	PCB legal framework	Implementation of PCB regulation
		Administrative authorizations	PCB in use
			Phase out – disposal plans
			PCB out of use (storage)
			Handling and transport
			Maintenance utilities
	Laboratories		
Custom authorities	Control	PCB import and export	
Ministry of Health Ministry of Labour	Control	Professional exposition Food chain contamination	
Emergency services	Pollution	Cold pollution (ie leakage of liquid PCB without thermal decomposition).	
		Hot pollution (ie toxic gas and dust produced from thermal decomposition of PCB with oxygen. For example explosion of a PCB transformer. The toxic gases include HCl, Cl, CO, PCDD, PCDF).	
2. PCB owners/holders	Public electrical network	ESM of PCB	Purchasing
	Private sector		Use Maintenance Phase out Storage
3. Technical operators	Maintenance utilities	Provider of services	Maintenance of equipment : replacement of oil, replacement of components
	Control		Control of equipment : certificate of compliance for transformers in use
	Insurance		professionnel Insurance for environmental risks
	PCB analysis		Mineral oil Food chain

	Operation on decommissioned transformers		Handling, dismantling, draining, packing utilities
	Temporary storages		Storage of decommissioned transformers and liquid PCB wastes
	Disposal		Decontamination of carcasses
	Recycling		Metal
Liquid		Co incineration in cement kiln	
4. Civil society	Right to know	Release and transfer of PCB	Food chain contamination
	Implementation of PCB utilities for storage and disposal		Risks and impact assessment

In light of the above, and in terms of project activities, the following stakeholder analysis has been completed, defining stakeholders and project roles and responsibilities.

**Table 3: Stakeholder roles and responsibilities**

Category	Stakeholder	Role/responsibility	Project specific issues
<b>Government</b>	Ministry of Environment	Protect and monitor the environment, enforce environmental laws, implement International Conventions. Responsible for PCB legislation. Basel, Stockholm and Rotterdam Convention focal points located here.	Ministry works towards minimizing PCB releases and ensuring adherence to Stockholm Convention by completing legal environmental framework to fully cover PCBs. Member of NCC.
	Ministry of Industry	Ensure competitiveness of the industrial sector.	Supports development of stricter PCB management legislation and system, but demand financial support for the elimination of PCB equipment in the smallest industries. Member of NCC.
	Ministry of Interior	Management of emergency and risk situations, rescue operations and recovery. This Ministry is also the official authority of the local electricity distribution companies	Member of NCC.
	Ministry of Health	Co-ordinating authority for national public health.	Strongly supports the project particularly the parts dealing with human exposure i.e. handling and release minimization.

			Member of NCC. limit values for food and waters
	Ministry of Energy	Official authority (main electrical company in the country and electrical grid owner)	Supports the project for ESM of PCB. Member of NCC.
	Ministry of Finance	Responsible for Customs in most countries.	Member of NCC.
	Ministry of Transport	Responsible for permitting road transport of PCBs.	Member of NCC.
<b>Private sector</b>		Industry association	Concerns about financial burden for eliminating PCB transformers, oil analysis
	Elimination and PCB treatment companies	PCB treatment	Support the project, ready to implement additional safety measures in PCB operations. Project will strengthen the business and lower the prices of elimination.
	Laboratories	PCB analysis	May invest in chromatographs to analyze PCBs if there is a new regulation concerning PCBs
<b>Electrical companies</b>	Electricity production and national grid	Secure electricity production and distribution in the country	Pushing its clients to better manage their transformers and eliminate those containing PCB.
	Private electricity distribution companies	Secure electricity production and distribution in the country	Attempting to better manage transformers and eliminate those containing PCB.
<b>UNEP</b>	Division of Environmental Law and Conventions (DELIC)	Expertise on legislation and international environmental law	Review of draft legislation
	Regional office for Africa (ROA)	Coordination among countries in the African region	Provide support to the EA
	Chemicals Branch	Coordinates the PCB Elimination Network (PEN)	Link project activities to the work of the PEN
	International Environmental Technology Center (IETC)	Expertise on waste disposal technology	Advice on in-country disposal procedures and technology options
<b>Intergovernmental organisation</b>	World Customs Organisation	Coordinates international Customs cooperation	Project will engage and cooperate with on Customs training activities
	Green Customs	Partnership of intergovernmental	Project will engage and

	Initiative	organisations to prevent the trade of environmentally sensitive commodities	cooperate with on Customs training activities
<b>Others</b>	Environmental Organizations/NGOs	Raising awareness	Engaging with communities about danger of POPs and PCBs specifically

**B.2 DESCRIBE THE SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT AT THE NATIONAL AND LOCAL LEVELS, INCLUDING CONSIDERATION OF GENDER DIMENSIONS, AND HOW THESE WILL SUPPORT THE ACHIEVEMENT OF GLOBAL ENVIRONMENT BENEFITS (GEF TRUST FUND OR ADAPTATION BENEFITS (LDCF/SCCF)):**

Exposure of wildlife, in particular fish, to PCBs occurring as a result of past use, spills and accidents, leakage from hazardous waste sites, etc. may have occurred, but little monitoring of PCBs has been undertaken in Africa in humans, wildlife and fish, sediment, soil and water. PCB contamination of African waters is of particular concern because of the heavy reliance of the general population on fish as a main source of protein (with higher per capita consumption than in developing nations, despite lower overall protein intake) and also for commercial reasons.

At national and local levels it is expected environmental and health benefits thanks to decreased releases of PCBs that will reduce risk of contamination of water bodies and other media thereby reduce threat to food sources. The implementation of ESM schemes will also decrease risk of direct exposure to PCBs of occupationally exposed workers/operators, or people at risk to these chemicals through bad practices like open uses of PCB oils or recycling contaminated equipment.

The experience gained and capacity built for the sustainable management of PCBs and wastes by all stakeholders of this Project constitute a major benefit. Besides the awareness that this project will raise among all stakeholders including government officials regarding the need for ESM of PCBs, the project will also help them develop good practices towards better control and management of chemicals and wastes. In particular, health inspectors, environmental officers and custom officers will greatly benefit from this project by building capacity and gaining experience during training activities. Local and national electrical companies, private sector and other transformer owners will also benefit from this project, through the institutionalization of sustainable management practices, and the phase out and disposal of PCBs and wastes at an affordable costs. Anecdotal evidence gleaned through baselining activities indicate that some utilities in project countries still sell off used transformers that potentially contain PCB contaminated oil. This practice currently puts both people and the environment at risk. Through the capacity building, training, disposal of PCB-contaminated oil, and the institution of PCB phase-out plan, the project will stop this practice, therefore resulting in direct benefits to stakeholders.

In terms of gender, in daily life, men, women, and children are exposed to different kinds of chemicals in varying concentrations. Biological factors — notably size and physiological differences between women and men and between adults and children — influence susceptibility to health damage from exposure to toxic chemicals. Social factors, primarily gender-determined occupational roles, also have an impact on the level and frequency of exposure to toxic chemicals, the kinds of chemicals encountered, and the resulting impacts on human health. These gender dimensions need to be reflected at both site- and policy-level interventions for sound chemical management (for reference see UNDP (2007): Gender Mainstreaming – Key driver of development in environment and energy – Chemicals Management).

While recent scientific data from South Africa disclosed that especially women (as they are mainly working in and around the house) are vulnerable to pesticides applied through malaria control interventions, no such examples exist yet related to PCB issues especially in the participating countries. Anecdotal evidence gleaned



during baselining however indicate that men are most likely to be exposed to PCBs through occupational exposure, and the project will pay particular attention to this.

This project will pay attention to the gender dimensions in each of the project components, including through ensuring opportunities for women are provided in all training activities. In addition, a gender and vulnerable group analysis will be completed under Output 4.1. of the project to allow for targeted, gender specific risk communications and awareness tools to be developed and used as part of the project outreach efforts.

**B.3. EXPLAIN HOW COST-EFFECTIVENESS IS REFLECTED IN THE PROJECT DESIGN:**

This project seeks to achieve cost-effectiveness through a harmonized regional approach, including neighbouring countries, with similar problems. This project proposal seeks to retain as much work as possible in the region where costs are lower, and where services can be provided, leading to co-benefits of capacity development and employment returns. Collaboration with local businesses will be fostered under the project to ensure economic opportunities in the target countries as far as is practical. This includes the promotion of local services for the environmentally sound collection and transport of PCB containing equipment.

The PPG involved an extensive review and collection of available data and developed the following framework disposal plan, based on cost-effectiveness.

For the purposes of inventory and PCB management approaches, the following definitions, and disposal methods are proposed:

<b>Term</b>	<b>Definition</b>	<b>Proposed Disposal/Treatment method</b>
PCB contaminated oil	Oil with PCB concentration of > 50-2,000 ppm	Dechlorination
PCB contaminated equipment	Containing oil with PCB concentrations of > 50-2,000 ppm	Draining and refilling
Highly PCB contaminated oil	Oil with PCB concentration of >2,000 ppm	Export
Highly PCB contaminated equipment	Containing oil with PCB concentrations of > 2,000 ppm	Export
PCB Oil	Askarel, pure PCB oil	Export
PCB equipment	Transformers containing Askarel, and capacitors	Export

To reduce the amount of laboratory testing required, field test kits will be utilized for screening purposes according to the following principles:

Density test > 1	PCB oil confirmed,	Stop the analysis. No false negative result
Chlorine determination > 30 ppm (fluorescence X or potentiometry)	PCB contaminated mineral oil assumed	For PCB > 500 ppm, the probability of false negative is very low.
PCB determination by GPC > 50 ppm	PCB contaminated mineral oil confirmed	For PCB < 500 ppm, and results around 50 ppm, confirmation by GPC should be considered to avoid

		false positive and financial impact
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To inform the disposal plan, data on average distribution categories was gleaned from the GEF-funded, UNEP implemented, PCB West Africa project.

Category	% Total	% on PCB
< 50 ppm	53,83%	
> 50 ppm	36,03%	78,00%
> 500 ppm	6,06%	13,00%
> 2000 ppm	2,81%	6,50%
> 10 000 ppm	0,48%	1,10%
> 100 000 ppm	0,58%	1,00%
PCB	0,19%	0,40%
<b>Total</b>	<b>100,00%</b>	<b>100,00%</b>

For in-use transformers, the following technology options are proposed:

PCB oil transformers > 10 000 ppm	Phase out and disposal of solid and liquid parts overseas – replacement with PCB free transformer
PCB contaminated oil transformer < 10 000 ppm	Phase out and replace if the transformer is leaking or located in a sensitive area
	Keep in use with compliance works not later than 2025
PCB contaminated oil transformer < 2 000 ppm	Phase out and replace if the transformer is leaking or located in a sensitive area
	Keep in use with compliance works not later than 2025
	Dechlorination and reuse as PCB free transformer (< 50ppm)
PCB contaminated oil transformer < 500 ppm	Phase out and replace if the transformer is leaking or located in a sensitive area
	Keep in use with compliance works not later than 2025
	Decontamination by retrofilling and reuse as PCB free transformer (< 50ppm)

It is noted that PCBs are still being phased out in each country and many pieces of PCB containing equipment remains in use. This project will also collect data to ensure that future cost-effective projects can be planned and designed. In each country the PCB databases will include information on both in-use and disused PCB containing equipment. A profile will be developed for each country to ensure PCB containing equipment that is not yet ready for disposal remains recorded and monitored.

### C. DESCRIBE THE BUDGETED M&E PLAN:

UNEP will be responsible for managing the mid-term review/evaluation and the terminal evaluation. The Project Manager and partners will participate actively in the process.

The project will be reviewed or evaluated at mid-term. The purpose of the Mid-Term Review (MTR) or Mid-Term

Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools.

The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager. An MTE is managed by the Evaluation Office (EO) of UNEP. The EO will determine whether an MTE is required or an MTR is sufficient.

An independent terminal evaluation (TE) will take place at the end of project implementation. The EO will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

- (i) to provide evidence of results to meet accountability requirements, and
- (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners.

While a TE should review use of project funds against budget, it would be the role of a financial audit to assess probity (i.e. correctness, integrity etc.) of expenditure and transactions.


The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the EO in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scale. The final determination of project ratings will be made by the EO when the report is finalised. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process.

The direct costs of reviews and evaluations will be charged against the project evaluation budget. The detailed M&E budget is included as Annex G.

**PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)**

**A. GEF AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF policies<sup>7</sup> and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

<b>Agency Coordinator, Agency Name</b>	<b>Signature</b>	<b>Date (dd/mm/y yyy)</b>	<b>Project Contact Person</b>	<b>Telephone</b>	<b>Email Address</b>
<b>Brennan van Dyke</b> Director, UNEP GEF Coordination Office		25.11.15	Kevin Helps Division of GEF coordination	+254 20 762 4607	<a href="mailto:kevin.helps@unep.org">kevin.helps@unep.org</a>

<sup>7</sup> GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

**B. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION** *(Applicable Only to newly accredited GEF Project Agencies)*

For newly accredited GEF Project Agencies, please download and fill up the required **GEF Project Agency Certification of Ceiling Information Template** to be attached as an annex to the PIF.

**Record of Endorsement of GEF Operational Focal Points on Behalf of the Governments:**

<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b> (dd/mm/yyyy )
Ingrid Otukile, Chief Natural Resources Officer and GEF Operational Focal Point	GEF Operational Focal Point	Department of Environmental Affairs Ministry of Environment, Wildlife and Tourism, Botswana	29/03/2012
S.M. Damane, GEF Operational Focal Point, Lesotho	GEF Operational Focal Point	Ministry of Tourism, Environment and Culture, Lesotho	15/12/2011
Alysius Kamperewara, GEF Operational Focal Point, Malawi	GEF Operational Focal Point	Environmental Affairs Department, Malawi	2/11/2011
Ali Mansoor, GEF Operational Focal Point, Mauritius	GEF Operational Focal Point	Ministry of Finance and Economic Development, Mauritius	21/2/2012
Christine Ralalaharisoa, GEF Operational Focal Point, Madagascar	GEF Operational Focal Point	Ministry of Environment and Forests	4/11/2011
Telma Manilia Manjate, GEF Operational Focal Point, Mozambique	GEF Operational Focal Point	Ministry of Environment, Mozambique	30/11/2011
T. Nghitilia, GEF Operational Focal Point, Namibia	GEF Political Operational Focal Point	Ministry of Environment and Tourism, Namibia	16/11/2011
Didier Dogley, GEF Operational Focal Point, Seychelles	GEF Operational Focal Point	Ministry of Environment and Energy	14/5/2013
J.D. Vilakati, GEF Operational Focal Point, Swaziland	GEF Operational Focal Point	Swaziland Environment Authority	13/10/2011
Dr. Julius K. Ningu, GEF Operational Focal Point, Tanzania	GEF Operational Focal Point	Vice-President's Office, Tanzania	16/1/2015
Dr. K Nkowani, GEF Operational Focal Point, Zambia	GEF Operational Focal Point	Ministry of Lands, Natural Resources and Environmental Protection	17/4/2012
I.D. Kunene, GEF Operational Focal Point, Zimbabwe	GEF Operational Focal Point	Ministry of Environment and Natural Resources Management	14/12/2011

**ANNEX A: LOGICAL FRAMEWORK FORMAT FOR UNEP GEF PROJECTS**

**OVERALL GOAL: Disposal of PCB oils contained in transformers and disposal of capacitors containing PCB in Southern Africa**

Project Objective	Objective level Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP MTS reference*
To reduce environmental and human health risks from PCB releases through the cost-effective and socially acceptable environmentally sound management (ESM) of PCB oils, equipment and wastes held by electrical utilities and other PCB owners in participating countries.	<p>No. of participating countries with legislative framework for ESM of PCB in place</p> <p>No. of countries have strengthened administrative and technical capacities, as well as PCB disposal plans (to 2025) in line with the Stockholm Convention</p> <p>No. of tons contaminated equipment disposed of from 12 countries.</p>	<p>Lack of legal background, administrative and technical capacities for ESM of PCB at national level limiting from participating countries to fulfil their obligations</p> <p>Legislative review completed to varying extent in each countries' NIP</p> <p>No disposal of PCB contaminated equipment;</p> <p>Risks for human health and environment remains</p>	<p>12 countries develop legislation;</p> <p>12 countries complete Inventory verification and documentation in databases;</p> <p>Regional disposal plan developed and approved;</p> <p>4300t of PCB oils, equipment and wastes successfully disposed of</p>	<p>National regulations and guidelines submitted for adoption;</p> <p>Regional inventory verification report;</p> <p>Report</p> <p>Confirmation certificates of ESM disposal;</p>	<p>Assumptions: cooperation and management in the participating countries to ensure disposal activities can take place.</p> <p>Risks: Lack of willingness to adopt the ESM by countries;</p> <p>Poor coordination in the countries causing delay in inventory activities;</p> <p>Lack of commitment by PCB contaminated equipment and waste owners;</p>	EA1, EA3

**Project Component 1. Enhancement and regional harmonization of national regulatory infrastructure and sustainable mechanisms**

<b>Project Outcome</b>	<b>Outcome Indicators</b>	<b>Baseline</b>	<b>Targets and Monitoring Milestones</b>	<b>Means of Verification</b>	<b>Assumptions &amp; Risks</b>	<b>MTS Expected Accomplishment</b>
<p><b>Outcome 1</b></p> <p>National regulation and international requirements identified in 12 participating countries including infrastructure and enforcement capacities resulting in a Regionally harmonized approach for the environmentally sound management of PCB oils, equipment and wastes</p>	<p>No. of countries submit for adoption national regulation with minimum requirements of Stockholm and Basel Conventions supported by Guidance documents for different aspects of ESM of PCB</p> <p>No. of regional action plan developed and adopted through appropriate means and processes at the regional level;</p> <p>No. of application of regional action plan in participating countries;</p>	12 countries without proper legislative framework for management of PCB	<p><u>Year 1:</u> NCCs<sup>8</sup> established</p> <p><u>Year 2:</u> 12 countries submit for adoption PCB regulation</p>	<p>National regulations and guidelines adopted</p> <p>12 Reports of NCCs</p>	Late adoption of national regulations and guidelines in some of the participating countries	EA1
<b>Project Outputs</b>	<b>Output Indicators</b>	<b>Baseline</b>	<b>Targets and Monitoring Milestones</b>	<b>Means of Verification</b>	<b>Assumptions &amp; Risks</b>	<b>PoW Output Reference Number</b>
1.1 National regulations in 12	No. of draft regulation and guidance documents	12 countries lack proper legislative	<u>Year 2:</u> Regional draft regulation and	Draft regulations;	Assumption: Countries will put draft	EA1

<sup>8</sup> All NCC members will have designated alternatives

<p>countries on the ESM of PCB and PCB wastes in the context of the Stockholm and Basel Conventions reviewed</p>	<p>developed and adopted through appropriate means and processes at the regional level;</p> <p>No. of countries submit for adoption national regulations, with minimum requirements of Stockholm and Basel Conventions supported by Guidance documents for different aspects of ESM of PCB</p>	<p>framework for management of PCB;</p> <p>Varied approaches used limiting the movement of PCB wastes to environmentally sound disposal facilities, anecdotal evidence suggests equipment continues to be sold-off;</p> <p>12 countries without adequate control for import of PCB contaminated equipment</p>	<p>guidelines developed;</p> <p><u>Year 3:</u> 12 countries' have revised regulation ready for adoption;</p> <p>5 countries adopt PCB regulation</p>	<p>National regulations and guidelines submitted for adoption;</p> <p>Gazette or equivalent</p>	<p>regulations forward for national uptake;</p> <p>Risks: Late adoption of the draft regulation and guidelines in some of the participating countries</p>	
<p>1.2 Improved administrative capacity for controlling PCB in 12 participating countries</p>	<p>No. of inspectors and customs staff trained across 12 countries;</p> <p>No. of responsible persons for PCBs in power supply utilities and other stakeholders designated;</p> <p>No. of countries establish national database of PCB contaminated equipment;</p>	<p>Inadequate administrative capacity for managing PCB</p>	<p><u>Year 1:</u> 120 inspectors and customs staff training;</p> <p>60 responsible persons designated;</p> <p><u>Year 2:</u> 12 countries establish national PCB databases;</p> <p>250 responsible persons designated;</p>	<p>Report</p> <p>Training report</p> <p>NCC report</p> <p>Report</p>	<p>Assumptions: Governments take quick decisions for designation of PCB ESM coordinators;</p> <p>Staff available for training;</p> <p>Risks: Unwillingness of PCB contaminated equipment owners to participate;</p>	<p>EA1</p>



**Project Component 2. Enhanced regional capacity for ESM of PCB containing equipment in service**

<b>Project Outcome</b>	<b>Outcome Indicators</b>	<b>Baseline</b>	<b>Targets and Monitoring Milestones</b>	<b>Means of Verification</b>	<b>Assumptions &amp; Risks</b>	<b>MTS Expected Accomplishment</b>
<p><b>Outcome 2</b></p> <p>12 countries monitoring PCB containing equipment in service and tracking system established to follow until final phase out of PCB in electrical equipment</p>	<p>No. of regional template for inventory and tracking system development;</p> <p>No. of countries to adopt and use template;</p> <p>No. of countries develop and adopt inventory verification plans;</p> <p>Regional phase out plan detailed until 2025 in accordance with the phasing out priorities of Stockholm convention and Code of practice for the safe use of fully enclosed askarel-filled electrical equipment</p>	<p>Limited activities on PCB in the countries;</p> <p>No detailed inventories available;</p> <p>No phase out plan</p>	<p><u>Year 1</u>: 6 countries complete inventories;</p> <p><u>Year 3</u>: 12 countries complete Inventories;</p> <p>12 countries with information included in national databases;</p> <p>12 countries' phase-out plans endorsed at national level by utility companies and other PCB containing equipment owners;</p>	<p>Approved national inventory reports;</p> <p>Phase-out plan endorsement letters by utilities and other PCB containing equipment owners;</p> <p>Regional phase-out plan published.</p>	<p>Assumption: Country coordination is adequate;</p> <p>Risk: Lack of commitment by utility companies and other PCB contaminated equipment and waste owners;</p>	EA1 and EA3
<b>Project Outputs</b>	<b>Output Indicators</b>	<b>Baseline</b>	<b>Targets and Monitoring Milestones</b>	<b>Means of Verification</b>	<b>Assumptions &amp; Risks</b>	<b>PoW Output Reference Number</b>
2.1 Detailed inventories of PCB containing oils and	Regional template for inventory and tracking	No harmonised template for PCB inventories and	<u>Year 1</u> : 1 regional template available;	Progress report with template;	Assumption: Personnel for available for training and to	EA1 and EA3

equipment held by utility companies in 12 participating countries developed (in use and in waste)	<p>system development;</p> <p>No. of national utility inventory verification plans developed and adopted;</p> <p>No. of samples collected on average, and analysed, per country;</p> <p>No. of pieces of information on PCBs held by stakeholders provided for the national database</p>	<p>tracking system;</p> <p>Limited trained personnel available in the countries</p> <p>No detailed, up to date inventories, adequate for ESM of PCB</p>	<p><u>Year 2:</u> 12 national training sessions conducted;</p> <p>National inventories completed;</p> <p><u>Year 3:</u> 12 national inventories completed</p>	<p>Training reports</p> <p>Approved national inventory reports;</p>	<p>complete inventories;</p> <p>Risk: Poor coordination in the countries causing delay in inventory activities with utilities;</p>	
2.2 Detailed inventories of PCB containing oils and equipment held by other sectors in 12 countries developed	<p>No. of national “other sector” inventory verification plans developed and adopted;</p> <p>No. of samples collected, and analysed, on average per country done;</p> <p>No. of pieces of information held by stakeholders provided for the national database</p>	<p>No detailed inventories available and inadequate data for ESM of PCB</p>	<p><u>Year 3:</u> Inventories completed;</p> <p>Information included in national databases;</p>	<p>Approved national inventory reports;</p> <p>Information included in the national databases;</p> <p>12 Reports of NCCs</p>	<p>Assumption: Enough personnel to complete inventories on time;</p> <p>Risk: Poor coordination in the countries causing delay in inventory activities with utilities;</p>	EA3
2.3 Phase out plan endorsed by utility	<p>No. of utilities and other PCB owners adopting</p>	<p>No phase out plan</p>	<p><u>Year 3:</u> 12 countries’ utilities and PCB holders</p>	<p>Utility and PCB holder endorsement letters and other PCB</p>	<p>Assumption: Adequate cooperation and management in the</p>	EA3

companies and other PCB containing equipment owners	regional phase-out plan		endorse phase-out plans endorsed at national level	containing equipment owners; 12 Reports of NCCs	respective countries facilitating approval of disposal activities;  Risk: Lack of commitment by utility companies and other PCB contaminated equipment and waste owners;	
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**Project Component 3: Regional mechanism for ESM of decommissioned PCB liquids and equipment**

Project Outcome	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	MTS Expected Accomplishment
<b>Outcome 3</b>  PCB and PCB containing equipment disposed of in an environmentally sound manner in accordance with the Stockholm Convention from 12 countries	No. of utilities with trained personnel and procedures in place to perform collection, draining and transport of PCB;  No. of companies licenced to collect, drain and transport PCB hazardous waste available in the region;  No. of pieces of equipment exported for destruction;	No licenced PCB waste handling companies;  PCB contaminated transformers and capacitors not managed and disposed in ESM;  No independent monitoring  PCB contaminated transformers and capacitors not managed according to ESM	<u>Year 3</u> : 1 licences database established;  12 facilities for national storage of PCB wastes available;  6 service providers for collection, draining and transport available;  1000 capacitors collected and transported;  <u>Year 4</u> : 3,800t contaminated oil	Database  Report  Licences  Report  Monitoring report	Assumptions: Project website will be developed in first project year (at African Institute), maintained throughout the life of the project, and updated regularly with project news;  Other parties, donors, stakeholders, IAs, are interested and receptive to the lessons learned;  PCB contaminated transformers ready and available for phase-out;	EA1

	No. of tonnes destruction in dedicated facility;		<p>drained, and transported to national storage;</p> <p>1 agreed international transport and disposal tender;</p> <p><u>Year 5</u>: 3,800t of PCB contaminated oil dechlorinated.</p> <p>500t of PCB oil and PCB equipment disposed of in licensed facility abroad.</p>	<p>Report</p> <p>Contract</p> <p>Report</p> <p>Report</p>	<p>Risks: Delay in country reporting activities in countries;</p> <p>National reports not available, or activities incomplete in some participating countries.</p> <p>Technical and administrative deficiencies preventing contracting of service providers.</p> <p>SAPP does not have the capacity to undertake third party monitoring activities</p>	
<b>Project Outputs</b>	<b>Output Indicators</b>	<b>Baseline</b>	<b>Targets and Monitoring Milestones</b>	<b>Means of Verification</b>	<b>Assumptions &amp; Risks</b>	<b>PoW Output Reference Number</b>
3.1 Training of utilities for collection, draining and transport of PCB contaminated transformers	<p>No. of utilities have trained personnel and procedures in place to perform collection, draining and transport of PCB;</p> <p>No. of companies licenced to collect, drain and transport PCB hazardous</p>	<p>No licenced PCB waste handling companies;</p> <p>No qualified personnel and procedures in place;</p>	<p><u>Year 3</u>: 1 licences database established;</p> <p>12 facilities for national storage of PCB wastes available (before the collection and disposal phase);</p> <p>6 service providers for</p>	<p>Database of licenced companies</p> <p>National storage facility reports</p>	<p>Assumption: Utilities are committed to the collection, draining and transport of PCB waste.</p> <p>Risk: Lengthy bureaucratic approval processes delay licencing processes;</p>	

	<p>waste available in the region;</p> <p>No. of transformers collected and drained under environmentally sound manner in 12 countries.</p> <p>No. of capacitors collected and stored under environmentally sound conditions</p>		<p>collection, draining and transport available (before the collection and disposal phase);</p>			
<p>3.2 At least 4,300t of PCB contaminated oil and associated transformers collected at national storage facilities</p>	<p>No. of transformers collected and drained under environmentally sound manner in 12 countries.</p> <p>Volume of contaminated oil recovered.</p>	<p>PCB contaminated transformers not managed according to ESM</p>	<p><u>Year 2:</u> 1000t (transformers oil) drained and transported to national storage;</p> <p><u>Year 3:</u> 500t of askarel, PCB equipment, PCB contaminated oil (&gt;2,000ppm) ready for final disposal.</p> <p>3,800te of PCB contaminated oil ready for dechlorination</p>	<p>Field inspection reports, protocols of transport, reports of handling, chain of custody documentation</p>	<p>Assumption: PCB contaminated transformers ready and available for phase-out.</p> <p>Risk: Technical and administrative deficiencies preventing contracting of service providers.</p>	<p>EA1</p>
<p>3.3 At least 1,000 capacitors containing</p>	<p>No. of capacitors collected and stored</p>	<p>PCB contaminated capacitors not managed according</p>	<p><u>Year 1:</u> 100 capacitors collected and stored</p>	<p>Field control, protocols and reports</p>	<p>Assumptions: Capacitors identified are not in-service and</p>	

PCB oil identified and collected at the central interim storage site before export/treated	under environmentally sound conditions	to ESM	ready for final disposal;  <u>Year 3:</u> 600 capacitors collected, and stored ready for final disposal;  <u>Year 4:</u> 1000 capacitors collected, transported and stored ready for final disposal;		are available for collection;  Risks: Technical and administrative deficiencies preventing contracting of service providers.	
3.4 3,800t of PCB contaminated oil dechlorinated	No. of tons of PCB contaminated oil dechlorinated	PCB contaminated oil in disused transformers is often auctioned off, together with transformer casing for scrap.	<u>Year 4:</u> 1,800t dechlorinated  <u>Year 5:</u> 2,000t dechlorinated	Field reports  Field reports	Assumptions: Dechlorination unit can be moved between countries. Risks: problems with moving dechlorination unit between countries	EA1
3.5 PCB from transformers and full capacitors (expected 500t) exported for destruction at a dedicated facility	Agreed international disposal tender;  No. of pieces of equipment exported for destruction (incl. PCB oil in drums, highly contaminated carcasses which could not be handled on site);  No. of tonnes destroyed in dedicated facility (-ies)	PCB transformers and capacitors not disposed off according to ESM	<u>Year 4:</u> 1 agreed international transport and disposal tender;  <u>Year 5:</u> 500t of PCB contaminated equipment exported for destruction at a dedicated facility (-ies) in a region and abroad;	Basel movement documents  Disposal Certificates;  Disposal Report	Assumption: Interim storage capacity inadequate;  Risks: Delay in transit licences;  Delay in processing of export approval;	EA3

**Project Component 4: Stakeholder engagement and information exchange to facilitate dissemination of lessons learned, and development of regional capacity to finalize phase out of**

PCB and model developed for replication						
Project Outcome	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	MTS Expected Accomplishment
<p><b>Outcome 4</b></p> <p>Stakeholders are aware of the need to phase out PCBs in an environmentally sound manner and best practices developed for implementing ESM for ongoing management of in-use transformers in project countries, and for subsequent projects</p>	<p>Vulnerable groups identified across the region, and risks of PCBs communicated</p> <p>PCB project website developed and maintained</p> <p>Regional workshop held including participation of private sector, regional agencies and regional associations and other stakeholders, to share lessons learned;</p>	<p>No regional PCB ESM reports, some regional learning and advice through SAPP</p> <p>Minimal communication of risks associated with PCBs to vulnerable people.</p> <p>Vulnerable communities remain unidentified.</p>	<p><u>Year 1:</u> 1 Project website developed and maintained;</p> <p>Regional communication strategy in place.</p> <p><u>Year 2:</u> National communication strategies and identification of vulnerable groups;</p> <p><u>Year 3:</u> Implementation of risk communications and risk reduction awareness programs implemented;</p> <p><u>Year 4:</u> Ongoing implementation of risk communications and risk reduction awareness programs implemented;</p> <p>Disseminated best</p>	<p>Project website</p> <p>Regional report</p> <p>National reports</p> <p>Project report</p> <p>Project report</p> <p>Regional report</p>	<p>Assumptions: Project website will be developed in first project year and updated regularly with project news.</p> <p>Invitees participate in the regional workshops</p> <p>Other parties, donors, stakeholders, IAs, are interested in the lessons learned.</p> <p>Risks: Delay in country reporting activities in countries;</p> <p>National reports not available, or activities incomplete in some participating countries.</p>	<p>EA1</p>

			<p>practices for introduction of ESM taken up regionally and internationally</p> <p><u>Year 5:</u> Ongoing implementation of risk communications and risk reduction awareness programs implemented;</p>	Project report		
Project Outputs	Output Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	PoW Output Reference Number
4.1 National and regional communications / outreach / awareness strategies developed and implemented	<p>No. of regional communications strategies developed;</p> <p>No. of national communications strategies developed;</p> <p>No. of national risk analysis for vulnerable groups and gender analyses;</p> <p>No. of risk communications and risk reduction awareness programs implemented at</p>	<p>Minimal communication of risks associated with PCBs to vulnerable people.</p> <p>Vulnerable communities remain unidentified.</p>	<p><u>Year 1:</u> Development of regional communication strategy.</p> <p><u>Year 2:</u> Development of national communications strategies;</p> <p>Development of national risk analysis for vulnerable groups and gender analysis;</p> <p><u>Years 3 – 5:</u></p> <p>Risk communications and risk reduction awareness programs implemented at</p>	<p>Regional report</p> <p>National reports</p> <p>National reports</p> <p>National reports</p>	<p>Assumption: Output relies largely on the identification of national CSO / NGO partners with capacity to implement project activities at national level.</p> <p>Risk: Delay in country reporting activities in countries;</p>	EA1



	regional and national level.		regional and national level.			
4.2. Lessons learnt framework developed for replication and extension at national level following adoption by national authorities.	<p>No. of annual lessons learned and key experiences report reviewed by the PSC and delivery to national authorities.</p> <p>No. of project website and other outreach / communications tools developed and maintained</p> <p>No. of best practices for introduction of ESM identified, documented and disseminated (linked to existing SAPP guidance)</p> <p>No. of annual Regional workshops held in conjunction with PSC meeting to include participation of private sector, regional agencies and regional associations and other stakeholders to validate project result.</p>	No shared lessons learned in the region for PCB management	<p><u>Year 1:</u> Annual lessons learned and key experiences report</p> <p>Project website developed and maintained (linked to, or hosted within SAPP Website)</p> <p><u>Year 2:</u> Annual lessons learned and key experiences report</p> <p>Annual project results validation workshop (with PSC).</p> <p><u>Year 3:</u> Annual lessons learned and key experiences report</p> <p>Best practices for introduction of ESM identified, documented and disseminated</p> <p>Annual project results validation workshop</p>	<p>Project report</p> <p>Website</p> <p>Project report</p> <p>Project report</p> <p>Project report</p> <p>Project report</p> <p>Project report</p>	<p>Risk: national reports not available, or activities incomplete in some participating countries;</p> <p>Assumption: invitees to participate in the regional workshops;</p>	EA1

			(with PSC).  <u>Year 4:</u> Annual lessons learned and key experiences report  Annual project results validation workshop (with PSC).  <u>Year 5:</u> Annual lessons learned and key experiences report  Annual project results validation workshop (with PSC).	Project report  Project report  Project report  Project report		
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**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).

<b>STAP Comments (17 February 2014)</b>	<b>UNEP Reply</b>
<p>There should be some assessment of climate and geography-related risks, particularly for the island countries involved. Unless they have hydro-electricity, they may likely be using oil to generate electricity, and so electrical facilities are near the shore with storage of PCB equipment near waterways and the near shore, making coastal flooding events a greater risk, for example. Table A.3 should have this item added.</p>	<p>This has been addressed in the project document.</p>
<p>Could there perhaps be risks associated with the final central site to aggregate the waste? How is the site to be selected? Is it to be donated by one government or other? Are there parameters to ensure that the site does not put key aquifers at risk in the event of accidental releases? Or perhaps human settlements or conservation areas?</p>	<p>Project design has been adapted so that a central site will not be utilized. Instead project risks will be reduced by disposal contractors being responsible for transport, temporary storage and shipping of waste. They will be required to have in place environmental management plans for transport and storage, as well as appropriate insurances.</p>
<p>Admittedly outside of the usual science and technology remit, there are some marked text inconsistencies. The last 3 paragraphs of the Cost-effectiveness and Gender dimensions section as seen on page 8, are repeated on page 10. In addition, on page 9 ("Sustainability"), there is a floating sentence as the second paragraph. Also, as M&amp;E does feed into ensuring that there can be tracking of technical achievements and impacts from the project, it would be good to see where it would be supported by the budget. M&amp;E is mentioned in the text, but a small point is that it is not costed in Table B of the PIF, though gathering of lessons does arise in Component 4</p>	<p>M&amp;E has been included in Component 4</p>

**ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS<sup>9</sup>**

PPG Grant Approved at PIF: <b>89,918.20</b>			
<i><b>Project Preparation Activities Implemented</b></i>	<i><b>GEF/LDCF/SCCF/NPIF Amount (\$)</b></i>		
	<i><b>Budgeted Amount</b></i>	<i><b>Amount Spent To date</b></i>	<i><b>Amount Committed</b></i>
Participants DSA	13,591.20	12,100.00	
Accommodation for 24 participants at Burger's Park Hotel (Single Rooms) 3 nights @ \$100 USD x 24 + Plus Retreat for core team	9,950	9,922.10	
Travel: round-trip (flights)	19,900.00	21,933.60	
1 Meeting room for 30 participants for 2 days; Lunch & two coffee breaks per day for 30 participants: 30 x \$40 USD x 2; Internet access for two days in meeting room; \$1,200 USD	3,600	3,558.00	
Shuttle services for international participants to and from airport in Johannesburg	2,000	1,692.00	
Stationery, Printing and distribution of documents	500	331.56	
Report writing for proceedings of inception meeting and final project document	1,000	1,000	
Banner/backdrop, Badges, Name plates for participants	600	600	
Man hour contribution by Project's Coordinator in the write up, supervision and coordination of the proposal (1 person x USD 2,000/month/person x 5 months), and consultation with countries, including field visits to six countries	8,000	8,000	
Technical Consultancy services @USD 400 x 25days	10,000	5,750	2,750
Final project proposal consultancy services @USD 375 x 30 days	11,250	5,625	5,625
Miscellaneous (contingency for fluctuation in ticket prices)	1,000	1,000	
AI management fees	8,500	8,500	
<b>Total</b>	<b>89,918.20</b>	<b>80,012.26</b>	<b>8,375</b>

<sup>9</sup> If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

**ANNEX D: CALENDAR OF EXPECTED REFLOWS** (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Funds or to your Agency (and/or revolving fund that will be set up)

N/A

**ANNEX E: CONSULTANTS TO BE HIRED FOR THE PROJECT USING GEF/LDCF/SCCF RESOURCES**

<i>Position Titles</i>	<i>\$/ Person Week*</i>	<i>Estimated Person Weeks**</i>	<i>Tasks To Be Performed</i>
<b>For Project Management</b>			
Local			
Administrative assistant			Provision of administrative assistance to Project Officer including development and maintenance of project management systems.
International			
Project Officer			Ensure project governance and oversight of the financial resources from GEF investment; guiding and advancing the project; share achievements and project products/outputs with stakeholders; supervise the consultants and project partner organizations to deliver against their contracts and in time; organize the PSC meetings; manage and implement the project results and output level M&E framework; manage the flow of information from the field and producing periodic monitoring reports.
Justification for travel, if any: This is a regional project. Some travel to participating countries, as well as regional workshops will be necessary.			
<b>For Technical Assistance</b>			
Local			
PCB consultant - Tanzania	1000	120	Responsible for technical outputs under each project components – including inventory, database development, liaison with utilities, vulnerability assessments, and development of national communications plans
PCB Consultant - Namibia	1000	120	Ibid
PCB Consultant - Malawi	1000	100	Ibid
PCB Consultant - Seychelles	1000	80	Ibid
PCB Consultant - Botswana	1000	80	Ibid
PCB Consultant - Zimbabwe	1000	80	Ibid
PCB Consultant - Zambia	1000	80	Ibid
PCB Consultant - Swaziland	1000	80	Ibid
PCB Consultant - Madagascar	1000	80	Ibid
PCB Consultant - Lesotho	1000	80	Ibid
PCB Consultant - Mauritius	1000	80	Ibid
PCB Consultant - Mozambique	1000	80	Ibid
International			
In-use PCB consultant	2,500	20	Development of PCB disposal plan until 2025, oversight of testing programme for in-use transformers
International legal consultant	2,500	48	Review of legislation in 12 project countries and drafting of new regulations for each
Justification for travel, if any: As this is a regional project, international consultants will be required to visit each of the project countries.			

**ANNEX F: GEF BUDGET AND CO-FINANCE BUDGET**

(see attached excel spreadsheet)

## ANNEX G: M&E BUDGET AND WORKPLAN

M&E activity	Purpose	Responsible Party	Budget (US\$)* <sup>1</sup>	Time-frame
Inception workshop	Review of project activities, outputs and intended outcomes; detailed work planning	AIMHW	40,000	Within two months of project start (back-to-back with technical meeting)
Inception report	Provides implementation plan for progress monitoring	Project coordinator	Included in EA fee	Immediately following Inception Workshop
Ongoing project monitoring	Ongoing monitoring according to M&E plan	AIMHW	50,000	Ongoing
Project Review by PSC	Assesses progress, effectiveness of operations and technical outputs; Recommends adaptation where necessary and confirms implementation plan.	AIMHW	70,000	Month 1, 12 (TC), 24, 36
Project Implementation review	Progress and effectiveness review for the GEF, provision of lessons learned.	AIMHW	Included in EA fee	Annually (July 31)
MTR/MTE	This will be organized by UNEP Task Manager/UNEP Evaluation Office	UNEP TM	40,000	Month 30
Terminal report	Reviews effectiveness against implementation plan Highlights technical outputs Identifies lessons learned and likely design approaches for future projects, assesses likelihood of achieving design outcomes	AIMHW	Included in EA fee	At the end of project implementation
Independent Terminal evaluation	Reviews effectiveness, efficiency and timeliness of project implementation, coordination mechanisms and outputs Identifies lessons learned and likely remedial actions for future projects Highlights technical achievements and assesses against prevailing benchmarks	UNEP Evaluation Office	40,000	At end of project implementation
Independent Financial Audit	Reviews use of project funds against budget and assesses probity of expenditure and transactions	AIMHW	10,000	At the end of project implementation
<b>Total indicative Monitoring &amp; Evaluation cost</b>			<b>250,000</b>	



## **ANNEX H: PROJECT IMPLEMENTATION ARRANGEMENTS**

### ***DIVISION OF RESPONSIBILITIES:***

**Implementing Agency (IA):** This project will be implemented by UNEP. UNEP will be responsible for the overall project supervision, overseeing the project progress through the monitoring and evaluation of project activities and progress reports. It will report the project implementing progress to GEF and will take part in the Project Steering Committee (PSC). UNEP will closely collaborate with the EA and provide it with administrative support in the implementation of the project.

**Executing Agency (EA):** AIMHW will execute the project. As EA, AIMHW's key roles include:

- Establishing and housing the project implementation unit (PIU)
- Acting as Secretariat for the Project Steering Committee (PSC)
- Oversee that the project runs according to the agreed work plan, budget and reporting tasks

**PIU:** The PIU will be staffed by a Project Manager and Project Assistant. The role of the PIU is to:

- Ensure Project execution (all technical aspects of project implementation)
- Ensure project governance and oversight of the financial resources from GEF investment
- Provide staff time and expertise in guiding and advancing the project
- Sharing all achievements and project products/outputs with stakeholders
- Supervise the consultants and project partner organizations to deliver against their contracts and in time
- Organize the PSC meetings and serve as its secretariat
- Management and implement the project results and output level M&E framework, to evaluate project performance
- Manage the flow of information from the field and producing periodic monitoring reports.

**PSC:** The PSC's membership includes IA, EA, country National Coordinating Committee, South African Power Pool (SAPP) and other stakeholders. The role of the PSC is to:

- Oversee the GEF Project
- Provide overall guidance and ensure coordination between all parties
- Provide overall supervision for project implementation
- Approve the annual work plan and budget
- Oversee the implementation of corrective actions
- Enhance synergy between the GEF project and other ongoing initiatives

### ***DESCRIBE THE INTERNAL STRUCTURE***

The PIU will be housed at and be supported by the EA (AIMHW). The PIU is responsible for the daily implementation of the project, including all reporting and monitoring and evaluation duties, as well as the follow-up of all contractual tasks. The PIU liaises with all project partners, including with National Focal Point, the primary representatives of National Coordinating Committees (comprising government, utility and NGO representatives). The PIU serves as Secretariat to the PSC.

### ***DESCRIBE THE EXTERNAL STRUCTURE***

The PSC, chaired by a participating country, is in charge of the project oversight and overall guidance. It will meet at least on an annual basis or according to the project's needs.

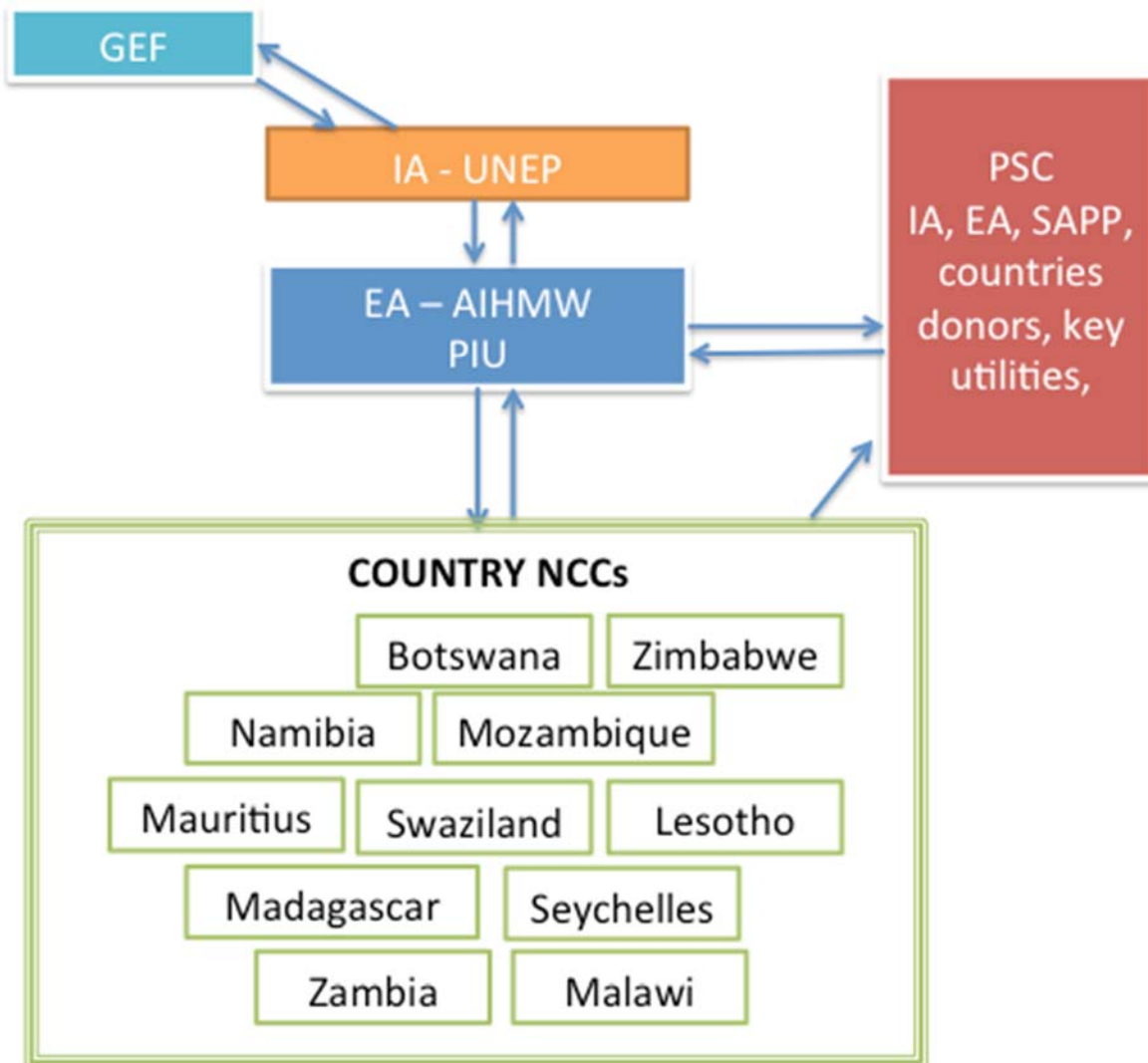
### ***DESCRIBE THE OVERSIGHT MECHANISM***

The main oversight body for the project is its PSC, comprised of the IA, the EA and representatives of all main partners and stakeholder groups. Further monitoring and evaluation procedures of the project, including regular reporting

duties, are detailed in Annex G. The EA can undertake field visits at any stage and is tasked to organize the mid-term review and terminal evaluation and audit of the project.

**PROVIDE THE ORGANIGRAM DIAGRAM**

As is shown in the graphical sketch below, the EA makes agreement with all partners in the project (i.e., beneficiary countries). By implementing the agreements, the partners report back to the EA and interact among themselves according to project activities.



**ANNEX I - KEY DELIVERABLES AND BENCHMARKS**

<b>Key deliverables</b>	<b>Time line (months after project start)</b>
1. Inception meeting report	4
2. Draft regional guidelines	12
3. National regulatory frameworks available for adaption	24
4. Inspectors and Customs Staff training reports	12,17
5. Regional PCB action plan	17
6. Guidelines for ESM of PCBs	16
7. PCB inventory training report	17
8. National utility PCB verification plans	24
9. Regional phase-out plan	32
9. Utility personnel training report	32
10. Licensing report	36
11. Collection, drainage and storage report	45
12. Export and destruction report	56
13. Third party monitoring reports	36,48,60
14. Communications and awareness implementation plan	18
15. Progress reports	7,13,19,25,31,37,43,49,54,60
16. Lessons learned report	60

**ANNEX J – POPS TRACKING TOOL**

Attached as a separate file

**ANNEX K – OFP ENDORSEMENT LETTER**

Attached as separate file

**ANNEX L: CO-FINANCING COMMITMENT LETTERS FROM PROJECT PARTNERS**

Attached as separate file

## ANNEX M: ENVIRONMENTAL AND SOCIAL SAFEGUARDS CHECKLIST

As part of the GEFs evolving Fiduciary Standards that Implementing Agencies have to address 'Environmental and Social Safeguards'. To fill this checklist:

- **STEP 1: Initially assess E&S Safeguards as part of PIF development. The checklist is to be submitted for the CRC.**
- **STEP 2 : Check list is reviewed during PPG project preparation phase and updated as required**
- **STEP 3 : Final check list submitted for PRC showing what activities are being undertaken to address issues identified**

### UNEP/GEF Environmental and Social Safeguards Checklist

<b>Project Title:</b>	<b>Disposal of PCB oils contained in transformers and disposal of capacitors containing PCB in Southern Africa</b>		
<b>GEF project ID and UNEP ID/IMIS Number</b>	<b>5532 00805</b>	<b>Version of checklist</b>	<b>1</b>
<b>Project status (preparation, implementation, MTE/MTR, TE)</b>	<b>Preparation</b>	<b>Date of this version:</b>	<b>8 March 2015</b>
<b>Checklist prepared by (Name, Title, and Institution)</b>	<b>Melanie Ashton, Consultant, SADC</b>		

#### **Section A: Project location**

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

- Is the project area in or close to -	<i>Yes/No/N.A.</i>	<i>Comment/explanation</i>
- densely populated area?	<i>No</i>	
- cultural heritage site	<i>No</i>	
- protected area	<i>No</i>	
- wetland	<i>No</i>	
- mangrove	<i>Nil</i>	
- estuarine	<i>No</i>	
- buffer zone of protected area	<i>No</i>	
- special area for protection of biodiversity	<i>No</i>	
- Will project require temporary or permanent support facilities	<i>Yes</i>	<i>For PCB oil and contaminated equipment. Will be stored in bunded areas, managed according to project EMP</i>

**Section B: Environmental impacts**

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/ No/ N.A.	Comment/explanation
Are ecosystems related to project fragile or degraded	No	
Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure?	No	
- Will project cause impairment of ecological opportunities	No	
- Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters)	No	
- Will project cause soil erosion and siltation?	No	
- Will project cause increased waste production?	No	<i>This is a waste management project, and is about ESM of waste</i>
- Will project cause threat to local ecosystems due	No	
- Will project cause Greenhouse Gas Emissions?	No	
- Other environmental issues, e.g. noise and traffic	No	<i>There is a risk of spill of PCB waste during transport. An EMP will be developed and in the event of a spill, emergency spill kits will be used in accordance with EMP plans (these will be carried by all transporting vehicles)</i>

**Section C: Social impacts**

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/ No/ N.A.	Comment/explanation

- Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people?	No	
- Are property rights on resources such as land tenure recognized by the existing laws in affected countries?	NA	
- Will the project cause social problems and conflicts related to land tenure and access to resources?	No	
- Does the project incorporate measures to allow affected stakeholders' information and consultation?	Yes	
- Will the project affect the state of the targeted country's (-ies') institutional context?	Yes	<i>It aims to strengthen it</i>
- Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries)?	No	
- Will the project cause technology or land use modification that may change present social and economic activities?	No	
- Will the project cause dislocation or involuntary resettlement of people?	No	
- Will the project cause uncontrolled in-migration (short- and long-term) with opening of roads to areas and possible overloading of social infrastructure?	No	
- Will the project cause increased local or regional unemployment?	No	
- Does the project include measures to avoid forced or child labour?	No	
- Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project?	Yes	<i>International best practice to be applied.</i>
- Will the project cause impairment of recreational opportunities? - Will the project cause impairment of indigenous people's livelihoods or belief systems?	No	
- Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups?	No	
- Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage?	No	
- Does the project include measures to avoid corruption?	NA	
<i>Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long-term, can the project go ahead.</i>		

**Section D: Other considerations**

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/ No/ N.A.	Comment/explanation
- Does national regulation in affected country (-ies) require EIA	Yes	

and/or ESIA for this type of activity?		
- Is there national capacity to ensure a sound implementation of EIA and/or SIA requirements present in affected country (-ies)?	<i>Yes</i>	
- Is the project addressing issues, which are already addressed by other alternative approaches and projects?	<i>No</i>	
- Will the project components generate or contribute to cumulative or long-term environmental or social impacts?	<i>Yes</i>	
- Is it possible to isolate the impact from this project to monitor E&S impact?	<i>No</i>	



## ANNEX N: ACRONYMS AND ABBREVIATIONS

AIMHW	Africa Institute for the Environmentally Sound Management of Hazardous and other Wastes
BAT/BEP	Best Available Techniques/Best Environmental Practices
COP	Conference of the Parties
EA	Executing Agency
ESM	Environmentally Sound Management
FSP	Full-sized project
GEF	Global Environment Facility
IA	Implementing Agency
IPCC	Intergovernmental Panel on Climate Change
NCC	National Coordinating Committees
NGO	Nongovernmental organization
NIP	National implementation plan
MEAs	Multilateral Environmental Agreements
MOU	Memorandum of Understanding
OFF	Official Focal Point (GEF)
PCB	Polychlorinated biphenyl
PCB equipment capacitors	Highly contaminated (>2,000ppm) oil, transformer casings, and capacitors
PCB contaminated Equipment	PCB contaminated oil (<2,000ppm)
PIF	Project Information Form
PIR	Project Implementation Review
PPG	Project Preparation Grant
POPs	Persistent organic pollutants
PSC	Project Steering Committee
PY	Project Year
SADC	South African Development Community
SAICM	Strategic Approach to International Chemicals Management
SAPP	South African Power Pool
SC	Stockholm Convention on Persistent Organic Pollutants
UNEP	United Nations Environment Programme

## ANNEX O: EXECUTING AGENCY BASELINE DATA COLLECTION REPORT – COUNTRY VISITS

### SUMMARY MISSION REPORT

**Zambia - 28 June to July 1, 2015**

#### **Sites visited: ZESCO (Lusaka and Siavonga Towns)**

1. Head office main workshop in Lusaka
2. Kafue Gorge Power Station in Siavonga Town

#### **Officials met at ZESCO**

1. Brenda Musonda – Manager, Head Environmental Unit ([musondachizinga@zesco.co.zm](mailto:musondachizinga@zesco.co.zm))
2. Christopher Kaniki – Senior Environmental Scientist ([ckaniki@zesco.co.zm](mailto:ckaniki@zesco.co.zm))
3. Samuel Sakala – Power Station Manager, Kariba North Bank Power Station ([spsinkala@zesco.co.zm](mailto:spsinkala@zesco.co.zm))

#### **Officials met at the Zambia Environmental Management Agency**

1. Mr. Max Nkoya – Acting Director General ([mnkoya@zema.org.zm](mailto:mnkoya@zema.org.zm))
2. Ms. Moono Kanjelesha – Senior Inspector ([mkanjelesha@zema.org.zm](mailto:mkanjelesha@zema.org.zm))
3. Ms. Irene Chipili – Principal Communications Officer ([iglungu@zema.org.zm](mailto:iglungu@zema.org.zm))

#### **Official from Africa Institute**

1. Mr. James Mulolo – Projects Coordinator

#### **Key Findings of site visit**

1. A number of transformers at the main workshop in Lusaka were found to be leaking and spilling oil into storm drains around the workshop. The storage area is also not concrete lined to contain the spills and all the drained oils are put in drums that are stored in open yard susceptible to pilferage.
2. Soil contamination with oil spills from the draining and leaking of transformers was evident around the workshops.
3. Supplier of distribution transformers in the country is a joint venture company between ZESCO and the Egyptian Government based in Ndola. The bigger transmission transformers are procured overseas. The utility explained that all firms are required to provide PCB free certificates for the transformers they supply.
4. Two PCB transformer and oil storage facilities sites exist in the country for the storage of tested transformers, oils and Capacitors suspected to be contaminated. However no such tests have been done in the last 5 years and thus no new equipment has been moved to these two sites. Theft of capacitors was reported at these sites.
5. The two storage sites will also serve as hubs for any further movement of PCB equipment from the country. Their location near the borders with Zimbabwe and Tanzania makes them ideal for transboundary movement.

6. There is eagerness among top management of the utility to have the PCB equipment removed from the 2 storage sites moved out of the country. They have arranged for the 300tons of contaminated soil to be disposed and the procurement process for disposal was underway. They have other company initiatives like awareness activities on PCBs to their technicians within the firm.
7. A detailed country inventory of PCB suspected transformers and capacitors has not been conducted in the last 10 years. This means that coupled with the high probability of cross contamination and poor management of oil, a number of transformers on the network is PCB contaminated.
8. Awareness levels among line technicians handling transformers on a day to day basis as far as what was PCB and the dangers associated with it.
9. Cross contamination transformer oil was found to be high due to lack of designated PCB oil storage containers at the workshops.
10. The total number of transformers on the distribution network was 15,678 transformers while those on the transmission lines could not be provided by the firm.
11. A fully fledged and dedicated environment and safety department deals with all Environmental issues of the utility and this will be the coordination department for the project at full implementation. They have experience in PCB disposal having done a similar one in 2003.

## **Botswana - July 1- 4, 2015**

### **Sites visited: Botswana Power Corporation (Gaborone Town)**

1. Main workshop
2. Water treatment substation in the north

### **Officials met at Botswana Power Corporation**

1. Mr. Joseph Phalalo – Head Safety Health, Environmental and Quality Department (PhalaloJ@bpc.bw)
2. Ms. Pearl Moswang – Chief SHE officer
3. Mr. Mpenya – Senior Technical Distribution Officer
4. Mr. Kokapano Nthobatsang – Senior Technical Distribution Officer

### **Official from Africa Institute**

1. Mr. James Mulolo – Projects Coordinator

### **Key Findings of site visit**

1. The country has no designated PCB storage facility. During the project implementation, specific workshops will be identified to serve as hubs for the transboundary movement of PCB contaminated transformers.
2. Transformers and other electrical equipment not in use are stored at various sub stations around the country and a serious challenge of theft of such equipment has been reported. This includes transformer oil kept in 210litre drums.
3. Leakage of oil from transformers at sub stations and main workshop resulting in contamination of surrounding soil. This presents a challenge as to the amount of PCB oil that will eventually be disposed by the project.
4. A number of labelled PCB contaminated transformers that were identified during an inventory year's back are no longer in their position and those that were still in service had their PCB contaminated labels missing or discoloured. The utility assured the team that new labels will be procured to address those that have discoloured.
5. Major supplier of distribution transformers in the country are companies from South Africa. The labels clearly indicated PCB free transformers.
6. Lack of dedicated PCB oil storage containers has a risk of cross contamination with other oil and thus transformers on the network during the top up of oil into transformers (problems of leakage even for online transformers).
7. Redundant equipment, including transformers, are auctioned out by the utility without due regard to their PCB status. There is no tracking system of these companies and how these deal with the scrap or oil once bought.
8. There is however eagerness from the utility to have the PCB equipment removed from the country.
9. A detailed inventory has not been done on the status of PCB in the country.
10. PCB issues and its dangers did not appear to be a concern among technicians handling equipment on a day to day basis but they did indicate hearing about it. Awareness activities on

PCB had been conducted in one region in 2014. There were plans to have a national wide program in the future, funds permitting.

11. Approximately a total of 12,000 transformers were on the distribution network as at 2015.

## **Tanzania - July 7- 11, 2015**

### **Sites visited: TANESCO (Dar es Salaam Town and surrounding Areas)**

1. Tegeta sub station
2. Head office main workshop
3. Gongolamboto sub station
4. Ubungo sub station

### **Officials met at TANESCO**

1. Mr. Aaron F. Nanyaro – Senior Manager Research (aaron.nanyaro@tanESCO.co.tz)
2. Mr. Hamdun Mansur – Head , Safety Health and Environment (mansu1965@gmail.com)
3. Mr. Amon Gamba – Senior Engineer, Distribution (amon.gamba@tanESCO.co.tz)
4. Mr. Fikiriri Mtandika – Engineer Head , Safety Health and Environment (mtandikaf@gmail.com)

### **Official from Africa Institute**

1. Mr. James Mulolo – Projects Coordinator

### **Key Findings of site visit**

1. A number of transformers that were previously labelled PCB contaminated and removed from service have been put back in service and PCB labels missing. The electricity challenge facing the region poses a risk to the decommissioning of such equipment previously identified.
2. A labelling system was previously developed but this was not consistent throughout the country and any remaining label on the equipment had faded.
3. The utility does not have a dedicated storage site for contaminated equipment and use open areas around utility offices and sub stations as storage areas for disused transformers destined for repair or disposal.
4. Most of the transformers at the sub stations and utility offices had oil drained out of them. Oil presence in storm water drains around such facilities was evidence this fact. It was also evident that some oil had been out rightly stolen.
5. Equally a lack of dedicated storage containers for PCB oil posed a risk of cross contamination of PCB free transformers on the network during top up of transformers and general reuse of the oil.
6. Redundant transformers were sold as scrap to bidders and the buyers decided how to dispose of the oil in them if at all there was any oil. No records were available on who bought what equipment and whether such equipment was PCB contaminated or not.
7. Serious challenge of theft of equipment, including transformers, oil and capacitors at these storage areas despite having controlled access by security.
8. No database exist all PCB contaminated equipment currently in possession of the utility. Any information on the status was based on knowledge of those staff that had been with the firm for a long time and was involved in the PCB subject before.
9. Contamination of soil within the workshops and sub stations as a result of transformer leakages was also prevalent.

10. No inventory of PCB status of the transformers and capacitors has been conducted in the country.
11. Awareness on the dangers of PCB was low even among senior personnel within the utility.
12. The absence of designated storage facility will thus entail the country identifying hubs for purposes of future PCB equipment disposal so that all equipment is moved to such sites. The utility indicated that they were conducting infrastructural upgrades and this will be addressed.

## **Malawi - 29 June to July 3, 2015**

### **Sites visited: ESCOM (Blantyre, Nkula and Tedzani Towns, central Malawi)**

1. Chichiri
2. Mapanga
3. Blantyre west
4. Nkula
5. Tedzani
6. Limbe
7. David Whitehead

### **Officials met at ESCOM**

1. Gertrude Malulu – Environment Officer (gmgmalulu@hmail.com)
2. Paul Machisere – Senior Engineer
3. Gladys Kalinde – Senior Engineer Substations
4. Patrick Kadewa – Systems Operations and training Manager
5. Kondwani Chikalamba – Senior Engineer
6. Fanuel T. Nkhono – Senior Administration and Logistics Manger
7. Everson B Sitolo – Director of Corporate Services
8. Peter Mtonda – Director of Distribution and Customer Services
9. Jeford Banda – Director of Transmission

### **Officials met at the Ministry of Environment**

1. Ms. Victoria Kachimera – Principal Environmental Officer
2. Ms. Yarina Ntupanyama – Permanent Secretary

### **Official from Africa Institute**

1. Dr. Taelo Letsela – Executive Director

### **Key Findings of site visit**

1. Missing transformer name plates on those transformers out of service at the workshops.
2. Serious challenge of theft of equipment, including transformers and capacitors and used oil at the workshops.
3. Contamination of soil within the workshops and sub stations as a result of transformer leakages.
4. Major supplier of distribution transformers in the country is Germany and South Africa.
5. A number of transformers that were previously labelled PCB contaminated and removed from service have been put back in service and PCB labels missing.
6. Lack of designated storage for PCB contaminated equipment breeds the problem of cross contamination of equipment.
7. Management of transformer oil is a challenge with no record of how it is disposed. It seems to be stolen from the utility.



8. There is common theft of the transformer oil with suggestive evidence of involvement of utility staff
9. There is also common practice of vandalising the transformers for purposes of stealing the oil. The oil is apparently used to make a homemade vehicle fuel.
10. There are storage sites with leaking transformers
11. Some of the transformers are extremely old e.g 1950s but remain in the grid because of pressure for electricity
12. No detailed inventory done of Transformers and Capacitors for the whole country.
13. No central or designated storage for PCB equipment in the country.
14. No labels on equipment that is suspected to be PCB contaminated.
15. Major supplier of distribution transformers in the country is Germany and South Africa.
16. The Ministry is currently not regulating what the utility does and no inspection are ever done.

## **MOZAMBIQUE SITES VISITED - 08 TO 10 JULY 2015**

### **EDM**

#### **Sites visited (Maputo Town and surrounding areas)**

1. Matola Gare
2. Infulene
3. Montaco
4. Matola 275
5. Machava
6. Maputo Thermal Powerplant (CTM)
7. Central Warehouse

#### **Officials met**

1. Belarmina Mirasse – Environmental Officer (Belarmina.Mirasse@edm.co.mz)
2. Amilton Alissone – Director of Engineering
3. Feliciano Massingue – Deputy Director
4. Jeronimo Marrime – Environmental Manager

### **HCB**

#### **Officials met**

1. Aida Mabjaia – Lab and Environmental Deputy Manager (Aida.Mabjaia@hcb.co.mz)
2. Nuno Nhantumbo – Team Coordinator Electrical Control
3. Binte Insa – Technical Environmental officer
4. Moises Machava – Administrator

#### **Sites visited - Songo Town (North of Mozambique)**

1. Powerhouse
2. Substations
3. Storage sites

#### **Official from Africa Institute**

1. Dr. Taelo Letsela – Executive Director

#### **Key Findings of site visit**

1. Practice of dismantling of transformers before sale or disposal by company without verification of PCB status.
2. No tracking system of companies and how these companies that buy the scrap or oil deal with these items once bought.
3. Management of transformer oil is a challenge with no record of how it is disposed.

4. No detailed inventory done of Transformers and Capacitors for the whole country.
5. Awareness levels among workers that handle transformers is low
6. No central or designated storage for PCB equipment in the country
7. No labels on some of the equipment that is suspected to be PCB contaminated.
8. HCB has a storage site where they have kept the capacitors that are suspected to contain PCBs. This site is well protected, fenced with a security guard at the gate.
9. EDM is selling its off-grid transformers to a scrap recycler. These transformers are not checked for PCBs. Many of the potentially PCB contaminated transformers end up with metal recyclers and therefore unaccounted. Eg the old powerhouse at CTM had been completely stripped of the transformers and no one could clearly say where they went to.
10. The recycler does not keep the oil and probably releases it into the drainage. This recycler could not explain what he does with the oil.
11. Because of this practice of selling the transformers it is highly possible that PCB contaminated transformers end up in the public domain with PCB oils realised in an unregulated manner.
12. The Ministry of Environment does not regulate what the utility does with either the oils or the obsolete transformers.
13. No reporting seems to be done by the utility to the government on its disposal of the obsolete transformers and the oil thereof.
14. There is very low awareness and consciousness on the topic of PCBs within the utility including within the management levels.
15. Environmental challenges are not a priority in general, the emphasis seems to be on making power available to the country.
16. Management is welcoming to this project perhaps as a way of cleaning up the current way of managing their obsolete and potential PCB oils.

## APPENDIX 10: EXECUTING AGENCY BASELINE DATA COLLECTION REPORT – SAPP CONSULTATION

As part of awareness rising and engagement of key stakeholders to the SADC PCB project earmarked for the 12 countries of the SADC region, the Africa Institute attended and engaged all the utilities at their 45<sup>th</sup> annual Southern African Power Pool (SAPP) meeting held in Gaborone, Botswana from Sep 1-3, 2015. In particular key issues that were discussed were the following:

1. Submission of co-finance letters from the utilities that had not yet done so
2. Update on the process of approval of the project
3. Interim management of equipment and oils suspected to contain PCB in the countries
4. Status of implementation of PCB management guidelines development under SAPP
5. Funding options for the disposal PCB equipment and oils that will remain post the SADC PCB project

In a presentation to the Environmental Sub- Committee, Mr. James Mulolo, Projects Coordinator at the Africa Institute explained that the SADC PCB project is essentially a project aimed at the removal of at least 80% of all PCB containing equipment and oils from the region. He told the meeting that this was a USD 7.7 million project which would be funded by GEF. The project was due for consideration by GEF in November 2015 after all concerns expressed by GEFSEC would have been addressed. He told the meeting that following the Africa Institute country verification tours conducted in July – August 2015, a number of issues came out and these were of concern to the viability of the project. The concerns were the following:

1. The management (haphazard storage and oil leakages) of PCB suspected equipment and oil at workshop yards and other sites owned by the utilities.
2. The lack of labelling of equipment previously suspected or tested to be PCB contaminated.
3. The poor record keeping of all PCB suspected equipment and oils within the custody of the utilities.
4. The sale or auction of equipment and oils by utilities without verification of the PCB status.
5. The removal of PCB suspected oil and equipment from workshop yards without any record of where they were sent.
6. The release of PCB equipment and oils into the public domain in an regulated manner.
7. The poor interaction between the utilities and the government on the management of PCB waste in the countries.

Following the presentation by Mr. Mulolo, the SAPP Environmental Sub-committee members deliberated on his presentation as well as the other project key issues on the agenda. Among their concerns were the following;

1. The extensive project development phase has resulted in some fatigue among management officials in some utilities hence their reluctance to sign co-finance letters for the project.

2. The fear of lack transparency from their environmental ministries in the countries during project execution.

Assurances were made to the SAPP members that a national coordination mechanism will be put in place to ensure transparency in the management of the project at national level as well as regional measures to ensure all stakeholders were on board. The meeting was also informed that the delay in the project start has been as a result of gaps in the information on the quantities of suspected PCB equipment and oils in the region. This information was critical in the approval and justification of the project. The continued delay in the submission of co-finance letters was also a cause for the delay. The meeting was informed of the positive interventions being made by some utilities in managing their PCB waste. A case in point was ZESCO limited that was in the process of disposing 300 tonnes of contaminated PCB soils.

The SAPP members accordingly resolved the following:

1. All outstanding co-finance letters from the utilities in Zambia, Mozambique, Tanzania, Botswana and Lesotho would be submitted by September 15, 2015 in readiness for project resubmission to GEF.
2. The utilities would go ahead and commence the movement of all PCB suspected equipment in outlying areas of their countries to central storage sites in readiness of the project.
3. Though all member countries had adopted the SAPP PCB guidelines, the implementation of these SAPP guidelines at different stages with some countries having developed PCB storage sites and uniform system of labelling while others were in the initial stages of implementation. The implementation was for that reason on-going in all SAPP member countries. The members agreed that the implementation needed to be accelerated so as to manage equipment and oils in an environmentally sound manner.
4. SAPP Environment subcommittee members would ensure that they engage their respective utility managements to guarantee that security at workshops and other storage sites was improved and that suspected PCB equipment and oils were not sold or auctioned without certification of being PCB free.
5. Since securing funds for the removal of PCB highly concentrated PCB equipment and oils post the SADC project would be a challenge, the members resolved to make certain that as much waste would be disposed under the SADC PCB project. In this way, the 2025 PCB target of the Stockholm convention would be achieved.

The members requested SAPP secretariat to table the issue of increasing its co-finance amount to the project from USD 1 million to USD 2 million in kind contribution to ensure support to the implementation of the guidelines in the member countries as well as awareness raising. Though the utilities reported to the subcommittee on their safety, health, environment and quality activities undertaken, it was not a requirement to report on specific SAPP guideline implementation activities to the subcommittee or SAPP secretariat. In view of the upcoming SADC PCB project, SAPP secretariat would consequently develop a mechanism of monitoring the implementation of guidelines developed under its mandate. The representative of SAPP secretariat informed the meeting that it operated on a

lean budget that was funded mainly from utility contributions with little donor support if any. Thus support to the project in terms of cash contribution was not possible. The meeting expressed gratitude to UNEP and the Africa Institute for the project and looked forward to further updates as the project neared its implementation. The meeting was then closed by the Environmental sub-committee chairperson, Mr. Danie Louw.



**ATTENDANCE LIST**  
**ENVIRONMENTAL SUB-COMMITTEE MEETING**  
**45<sup>TH</sup> SAPP MEETING, GABORONE BOTSWANA, SEPTEMBER 1-3, 2015**

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