



**United Nations  
Environment Programme  
CHEMICALS**



# **SADC PCB inventory project**

## **Executive Summary**

### **Sub-regional workshops**

**Lusaka, Zambia – 31 March to 4 April 2003**

**Maputo, Mozambique – 8 to 12 November 2004**

**Arusha, Tanzania – 26 to 28 October 2005**

**DRAFT VERSION**

**Organized by  
UNEP Chemicals, Geneva and the  
Environmental Council of Zambia**

**IOMC**

**INTER-ORGANIZATION PROGRAMME FOR THE SOUND MANAGEMENT OF CHEMICALS**  
A cooperative agreement among UNEP, ILO, FAO, WHO, UNIDO, UNITAR and OECD

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## TABLE OF CONTENTS

<b>TABLE OF CONTENTS .....</b>	<b>2</b>
<b>PREAMBLE .....</b>	<b>3</b>
<b>1. OVERVIEW – SUB-REGIONAL WORKSHOPS .....</b>	<b>4</b>
<b>2. WORKSHOP CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>4</b>
2.1. FIRST SUB-REGIONAL WORKSHOP IN LUSAKA, ZAMBIA, 31 MARCH TO 4 APRIL 2003 .....	4
2.2. SECOND REGIONAL WORKSHOP IN MAPUTO, MOZAMBIQUE, 8 - 12 NOVEMBER 2004.....	5
2.3. THIRD REGIONAL WORKSHOP IN ARUSHA, TANZANIA, 26 - 28 OCTOBER 2005 .....	7
<b>ANNEX.....</b>	<b>10</b>
<b>A. FIRST REGIONAL WORKSHOP LUSAKA, ZAMBIA, 31 MAR - 4 APR 2003 .....</b>	<b>10</b>
A.1. OPENING REMARKS .....	10
A.2. PROGRAMME .....	11
A.3. LIST OF PARTICIPANTS .....	14
<b>B. SECOND REGIONAL WORKSHOP MAPATO, MOZAMBIQUE, 8 TO 12 NOVEMBER 2004...21</b>	
B.1. PROGRAMME .....	21
B.2. LIST OF PARTICIPANTS .....	24
<b>C. THIRD REGIONAL WORKSHOP ARUSHA, TANZANIA – 26 TO 28 OCTOBER 2005.....31</b>	
C.1. OPENING REMARKS .....	31
C.2. PROGRAMME .....	35
C.3. LIST OF PARTICIPANTS .....	37

## **PREAMBLE**

The Stockholm Convention on Persistent Organic Pollutants (POPs), which entered into force in May 2004, aims at protecting human health and the environment from the harmful impacts of POPs. Parties to the Convention are required to take measures to eliminate or restrict the production, use, and trade of POPs as well as to develop a National Implementation Plan (NIP) and to review and update such a plan on a periodic basis. Part of the NIP is the establishment of inventories and action plans for the elimination of polychlorinated biphenyls (PCB). The Stockholm Convention calls for Parties to eliminate the use of PCBs in electrical equipment by 2025 and to make determined efforts towards the environmentally sound management of PCB-containing waste as soon as possible but no later than 2028.

In order to prepare for the implementation of the Stockholm Convention, several regional awareness-raising workshops were held in 2000 in member countries of the Southern African Development Community (SADC). The recommendations of these workshops called for the implementation of national PCB inventory projects in the SADC to support and supplement the NIP development.

In 2003, fourteen PCB inventory projects, funded through the Canada POPs Fund, France, Switzerland and the United States of America, were launched in fourteen SADC member countries. These were Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe.

The overall aim of these projects was to facilitate a greater awareness of the PCB issue within the SADC and to catalyze efforts by enhancing national capacities for the environmentally sound management of POPs, with special regard to PCB-containing equipment and PCB-containing waste through the development of national inventories.

The PCB inventory projects were managed by UNEP Chemicals in cooperation with the Secretariat of the Basel Convention. A regional project coordinator based at the Environmental Council of Zambia coordinated all project work within the SADC region and provided support for the ongoing inventory work.

## **1. OVERVIEW – SUB-REGIONAL WORKSHOPS**

In each participating country, a national PCB inventory training workshop was held, which have been organized and facilitated by the regional project coordinator. In addition to the national training workshops, three sub-regional workshops were held in the framework of the SADC PCB inventory projects from 2003 to 2005.

The first sub-regional workshop, which was held March 31 to April 1, 2003 at the Pamodzi Hotel in Lusaka, Zambia, aimed at facilitating the start of each of the individual national PCB inventory projects and was attended by experts and observers from industry and environmental governmental organizations from 13 countries as well as representatives from four Intergovernmental Organizations (UNEP, UNDP, UNITAR, and UNIDO).

The second sub-regional workshop was held in Maputo, Mozambique from 8 to 12 November 2004. The aim of this workshop was to assess the progress made in achieving project objectives and to share experiences gained during project implementation among participating countries. Furthermore, the workshop provided training on the development of PCB action plans.

The third and concluding sub-regional workshop on the conclusion of PCB inventory project and training on Action Plans for PCBs for SADC member countries was held at the Impala Hotel in Arusha, Tanzania from 26 to 28 October 2005. The workshop was attended by 37 invited representatives from SADC member countries, the utility sector, the Basel Convention Regional Centre in Pretoria, and by non-governmental organizations. The objectives of the sub-regional workshop were to present the results of the national PCB inventory projects and to make recommendations for future activities and needs with regard to PCBs in the SADC region.

For efficiency reasons, both of the workshops in Lusaka and in Maputo were held in conjunction with a training workshop on dioxin and furans for SADC member countries.

The presentations of this workshop are available on CD-ROM, which can be obtained from UNEP Chemicals by sending an email to:

[chemicals@unep.ch](mailto:chemicals@unep.ch)

## **2. WORKSHOP CONCLUSIONS AND RECOMMENDATIONS**

### **2.1. FIRST SUB-REGIONAL WORKSHOP IN LUSAKA, ZAMBIA, 31 MARCH TO 4 APRIL 2003**

With regard to the environmentally sound management of PCBs participants of the workshop acknowledged that most of the SADC member countries lack a PCB inventory. Participants also acknowledged that cases exist in which PCB-contaminated oils were misused. It was recognized that such misuse in the informal sector has the potential of adversely affecting human health. The workshop participants stated that the lack of public awareness on PCB related issues; the lack of suitable PCB disposal facilities; the lack of technical expertise; as well as the lack of PCB regulations and guidelines impede environmentally sound management of PCBs in the SADC region. Participants acknowledged that the importation of

PCB containing equipment was still possible in some SADC countries. With regard to PCB-contaminated oils in electrical equipment, particularly, transformers, capacitors, and circuit breakers were identified as the main sources.

The workshop participants identified a list of needs, in order to meet the obligations of the Stockholm Convention on POPs with regard to the environmentally sound management of PCBs in the SADC region. This included the establishment of a national inventory on PCB-containing equipment and contaminated media. As there is limited knowledge on PCBs throughout the SADC region, the raising of public awareness on PCBs was seen as one of the priority issues that should be addressed in this project. In order to increase understanding of threats posed by PCBs, the project work should also address the assessment of environmental health and the ecological baseline. Workshop participants further emphasized the necessity to evaluate available PCB disposal options and existing capacities and to strengthen the legal framework with regard to PCBs.

In order to respond to these needs, it was concluded to share the experience gained in the environmentally sound management of PCBs among member countries of the SADC region. In order to reach this goal it was recommended to implement a network on PCB related issues and to undertake research on the impact of PCBs on human health and the environment. Moreover, the importance of ongoing financial assistance was highlighted. In order to take up the project work without delay, it was recommended to rapidly provide access to test kits, to analytical facilities and to multilingual PCB awareness-raising material.

The following opportunities to facilitate the project implementation were identified:

- NIPs resources
- Experience from countries advanced in management of PCBs like Tanzania, South Africa and Zambia
- Collaborative efforts and workshops
- Industrial cooperation
- Link of PCB issues with poverty reduction programs
- Availability of existing awareness-raising material
- Availability of technical assistance from international organizations
- Basel Convention Regional Centre (Pretoria) services

The workshop recommendations were to reflect the role of the industry in the PCB inventory work in further deliberations as well as to explore all inventory options at the country level. Furthermore, it was recommended to link the SADC PCB project with the development of the countries' NIP project and to identify options and alternative for the disposal of PCBs within the SADC region.

## **2.2. SECOND REGIONAL WORKSHOP IN MAPUTO, MOZAMBIQUE, 8 - 12 NOVEMBER 2004**

The following conclusions and general recommendations were made with regard to the SADC inventory project.

The workshop participants stressed the need to make available test kits as soon as possible and in larger quantities with extra reagents where appropriate. It was recognized that actual testing should be preferred to statistical analyses and that access to laboratory testing

facilities is also required. In this context, the forthcoming arrangement for regional use of Tanzanian Government laboratory services and the opportunity to register laboratory facilities in the UNEP database was noted. It was further mentioned that some other countries have the ability to undertake testing and the regional coordinator will gather information on these capabilities, including the quality of the analyses.

There was a consensus on the need for extension of the inventory project to allow catch-up by delayed countries. Despite the recommended extension of the project, participants concluded that there is a need for countries to submit project reports as soon as possible to enable follow-up action.

Furthermore, it was concluded to encourage the sharing among SADC countries of existing awareness-raising materials such as brochures and films and, if not available, to consider the developing of awareness-raising materials for the public with regard to misuse of PCBs. Furthermore, it was considered useful to provide additional guidance materials, such as a PCB handbook for use by utility workers that draw on existing publications, including information on maintenance programmes for PCB-containing equipment.

It was noted that there is a need for evidence of the PCB problem before international organizations can assist. In this context, it recommended to investigate the provision of a standardized database for regional use.

There was a common understanding that the inventory coverage was limited by project budget constraints.

The recommendations of the workshop further included the consideration of future regional meetings after the end of the present project in order to allow the ongoing exchange of experience on PCB issues by SADC countries. There was also a widespread consensus to involve all concerned stakeholders, including customs officials, fire services and NGOs, in appropriate training and project activities. It was further recommended considering the possibility of harmonized PCB labels for equipment in the SADC region, in accordance with the GHS requirements.

The workshop participants welcomed the participation of SAPP in the present workshop and encouraged the SAPP environment sub-committee to take a more pro-active role on the PCB issue.

With regard to the development of PCB action plans, the following conclusions and general recommendations were drawn. It was noted that it is necessary to take into account health, environmental, and socio-economic issues and to engage all concerned stakeholders in the action plan development process. It was recommended using the action plans as an opportunity to develop project proposals that are funded from national budgets and from international assistance where appropriate and, at the same time, considering further opportunities for regional approaches to the PCB problem.

With regard to PCB disposal options, it was recommended considering carefully proven, robust technologies vs. emerging technologies. In order to prevent the future accumulation of PCBs, measures such as the controlling of cross-border movement of second-hand transformers should be implemented and existing laws and regulations should be reviewed to identify where PCB provisions could be added.

It was further recommended considering the development of MOUs with electric utilities and other companies to promote cooperation on PCB issues. Furthermore, when reviewing storage options for waste PCBs and PCB-containing equipment, possibilities for low-cost adaptation of existing structures should be considered.

There was a broad consensus that non-parties should consider ratifying the Stockholm Convention as soon as possible.

### **2.3. THIRD REGIONAL WORKSHOP IN ARUSHA, TANZANIA, 26 - 28 OCTOBER 2005**

The following major issues with regard to the environmentally sound PCB management were identified:

Administrative tools:

- Maintenance procedures
- Review of policies and legislation and amend accordingly

Awareness and capacity building:

- Awareness raising
- Strengthen capacity

Disposal of PCBs:

- Regional mobile disposal plant

Networking:

- Generate information for regional use
- Disseminate and share information

PCB-contamination:

- Limitation of new cross-contamination of electrical equipment
- Limitation contamination of the environment
- Monitoring of releases
- Remediation of contaminated sites

Storage facilities:

- Setting up new facilities where none exist
- Update/Improvement of existing facilities
- Storage must meet minimum requirements for the storage of PCBs

Transport:

- Regional transport guidelines

## **Acknowledgement of the achievements of the UNEP - SADC PCB Inventory Project**

The SADC member countries acknowledged the continued support of UNEP Chemicals to the region. Furthermore, the SADC member countries acknowledged the success of the SADC PCB Inventory Project in the region and outlined that the harmonization of the national inventory approaches in the SADC region, including the development of skills pertaining to the establishment of PCB inventories, was one of the major achievements of the project. The workshop participants acknowledged the development of preliminary PCB inventories in all participating countries and the establishment and strengthening of national PCB steering committees as integral part of the project work.

The project further facilitated a national multi-stakeholder approach and a strong working relationship between industry and the government was established. It was acknowledged that the project developed synergies between the Rotterdam, the Basel and the Stockholm Conventions. Furthermore, the project supported activities related to the preparation of the countries' NIPs and significantly raised the awareness level among decision makers with regards to PCB related issues.

It was further noted that the preliminary inventories revealed the enormous challenges in terms of PCB management that the SADC countries. These challenges include transformers and capacitors that contain pure PCBs; transformers and capacitors that contain PCB-contaminated mineral oils; PCB-contaminated wastes and sites; a general lack of adequate infrastructures for the sound management of PCBs, such as sites for the interim storage of PCB wastes and PCB disposal facilities; and a lack of legal infrastructure with regard to the environmentally sound management of PCBs.

### **Recommendations to SADC Countries:**

- Immediately (within one year) set-up and/or improve existing storage facilities (within one year) so that they meet the minimum storage conditions for PCBs (and other POPs) materials;
- Develop and implement administrative controls that would limit new contaminations (either cross-contamination of PCBs oils and equipment or of environment. The controls should cover such issues as maintenance procedures, monitoring of releases from contaminated sites and remediation of contaminated sites;
- Review their policies and amend relevant legislations to ensures that they meet their obligations under the Conventions e.g. to prohibit illegal trade, phase out and eventually eliminate use of not only PCBs but also other POPs;
- Update their PCBs inventories e.g. by covering areas not previously covered, improving the accuracy of the existing data e.g. by carrying out chemical analysis of the samples, labeling surveyed equipment using a regionally harmonized label and maintaining the inventory using a regionally harmonized database;
- Exploit existence of analytical laboratories within the region by setting up pilot laboratory analysis services, e.g. utilizing the capacity of the Government Laboratory Agency in Tanzania;
- Set up transport guidelines for in-country and transboundary movement of PCBs.
- Implement both awareness raising and capacity strengthening (e.g. occupation health and environmental safety) programmes of different target groups. The target groups include the utility companies, customs, technical personnel, policy and decision makers, media and the general public.

## **Recommendations to UNEP**

- Secure funding for setting up and improving storage facilities so that they meet the minimum requirements for storing PCBs and PCBs contaminated materials and equipment;
- Put in place monitoring schemes for PCBs releases from contaminated sites by providing training and equipment;
- Raise funding for completing the inventory and carrying out chemical analysis e.g. by supporting the SADC PCBs laboratory/chemical analysis pilot project;
- SADC countries call upon Project Coordinator to urgently make concrete arrangement with GCLA (and other accredited laboratories) through the relevant authorities and to confirm these arrangements to the countries;
- SADC countries call upon UNEP to facilitate the access of the regional pilot laboratory services;
- Acquire adequate supply of regionally harmonized labeling materials;
- To develop web accessible information on National PCBs project e.g. the inventory reports, priority setting reports, NIPs, etc. that can be linked to existing regional information clearing houses such as the BCRC;
- Implement awareness raising and capacity strengthening programmes by providing funding and technical backstopping;
- Acquire a regional pilot mobile disposal plant for PCBs.

## ANNEX

### A. FIRST REGIONAL WORKSHOP LUSAKA, ZAMBIA, 31 MAR - 4 APR 2003

#### A.1. OPENING REMARKS

The workshop was opened by MP Peter H. Filamba, the Deputy Minister of Tourism; Environment and Natural Resources of the Republic of Zambia and Dr. Heidelore Fiedler, Scientific Affairs Officer, UNEP Chemicals.

Dr. Fiedler thanked the Deputy Minister for his presence and welcomed participants on behalf of UNEP Chemicals and the Environmental Council of Zambia, who organized the workshop. She mentioned that this workshop serves the dual purpose to train SADC officials in the making of dioxin and furan inventories and to officially launch the PCB project in the SADC region and initiate first steps towards PCB inventories. She conveyed the awareness by UNEP and other organizations that southern African countries face problems such as poverty, economic development, health, and environment and that within these competing priorities, chemicals' management and especially the management of persistent organic pollutants may not be the first priority. But she stressed as well that many countries in the region are Party to the Basel Convention and are signatories to the Stockholm Convention. She congratulated the three countries that are already Party to the Stockholm Convention underlining their commitment towards sustainable chemicals' development. She mentioned that inventories of dioxins/furans and PCBs are important parts within the National Implementation Plans and the starting point for release reduction in the case of unwanted byproducts and for disposal operations to get rid of PCB in electrical equipment. She concluded by wishing all a successful and enjoyable week in Lusaka.

Deputy Minister Peter Filamba expressed his great pleasure to join the workshop participants and welcomed the opportunity to launch the SADC PCB Project. He mentioned the negative effects caused by mismanagement of chemicals and underlined that international action against persistent organic pollutants is needed to protect man and environment from the adverse effects of these chemicals. Since POPs undergo long-range transport, persist in the environment and are toxic, they are a threat globally and Zambia is not exempted. He stressed that Zambia is one of the 12 pilot countries to develop national implementation plans to reduce and eventually eliminate POPs and that this workshop will support Zambia's NIP as it does support the NIPs in all SADC member countries. He addressed the catalytic effect of the SADC PCB project within the three chemicals' conventions, namely Basel, Rotterdam, and Stockholm. He called for cooperation between governments at the local and federal levels, to raise public awareness, to administer projects to reduce POPs' risks, prioritize problems and implementing solutions. He encouraged industry to inform users, find alternatives and participate in voluntary programs and public interest groups and the general public to contribute to local decision-making. Finally, he called upon international and local financial institutions to fund projects to reduce POPs risks. Cooperation across country borders and with stakeholders in the NIPs will result in a safer environment. Minister Filamba closed by expressing his gratitude to UNEP and all those that have provided assistance and officially opened the workshop.

## **A.2.PROGRAMME**

### **Monday 31 March**

#### **Introduction**

- 09:00 Formal opening:  
Short statements by partners on their roles:  
(UNEP Chemicals, Basel Convention, ECZ, UNIDO, UNDP)
- 10:00 Inter-relationship between dioxin/furan and PCB inventories and Stockholm Convention  
National Implementation Plans **UNEP**
- 10:30 Coffee/tea break

#### **Training on dioxin and furan inventories**

- 11:00 Country reports: experiences with dioxins/furans
- 12:30 Lunch
- 13:30 Country reports (continued)
- 15:30 Coffee/tea break
- 16:00 Dioxin/Furan Toolkit – Overview **UNEP**

### **Tuesday 1 April**

#### **Training on dioxin and furan inventories (continued)**

- 9:00 Detailed training on individual source categories: **UNEP**  
Category 1 – waste incineration  
Category 6 – uncontrolled combustion  
Category 2 – ferrous and non-ferrous metals
- 10:20 Coffee/tea break
- 10:35 Category 3 – Mineral products  
Category 4 – Power generation  
Category 5 – Transport
- 12:30 Lunch
- 13:30 Category 7 – Consumer goods  
Category 8 – Miscellaneous  
Category 9 – Disposal  
Category 10 – Hotspots
- 15:15 Coffee/tea break
- 15:45 Preparation for working group session

- 16:00 Working group(s) to consider planning for dioxin and furan inventories, including workplan for the region; inventory timetable; access to source-specific information; stakeholder involvement; data evaluation; establishment of inventory; possibilities for regional cooperation, *etc.*
- 17:00 Report back by working group(s) and discussion

**Wednesday 2 April**

**PCB inventory training and project launch**

- |       |  |                      |
|-------|--|----------------------|
| 09:00 | The Stockholm Convention context   | <b>UNEP (MG)</b>     |
| 09:20 | The Basel Convention context   | <b>BCRC Pretoria</b> |
| 09:40 | Introduction to environmentally sound management of PCBs and PCB-containing equipment                          | <b>UNEP (JE)</b>     |
| 10:15 | Coffee/tea break   |                      |
| 10:45 | The PCBs situation in Africa<br>(drawing on recent inventory projects in e.g. Congo, Guinea, Mali, Senegal)    | <b>UNEP (JE)</b>     |
| 11:00 | Country presentations<br>(current state of knowledge of PCBs problem and progress, if any, under NIP projects) | <b>Chair ECZ</b>     |
| 12:30 | Lunch  |                      |
| 14:00 | Chairman's summary of country presentations  | <b>Chair ECZ</b>     |
| 14:30 | SADC PCB inventory project introduction<br>(background, objectives, stakeholders, implementation)              | <b>UNEP (MG)</b>     |
| 15:00 | PCB inventories: planning and preparation  | <b>SBC</b>           |
| 15:30 | Coffee/tea break   |                      |
| 16:00 | PCB inventories: on-site practicalities  | <b>ECZ</b>           |
| 16:30 | PCB inventories: analysis of samples   | <b>UNEP (JE)</b>     |
| 17:00 | PCB inventories: data management   | <b>SBC</b>           |
| 17:30 | Available guidance materials   | <b>UNEP/SBC</b>      |

18:30 Formal launch of the regional PCBs  
inventory project (cocktail reception)

**Thursday 3 April**

PCB inventory training and project launch (cont.)

09:00	PCB inventories: the Zambia experience	<b>ECZ</b>
09:20	The electricity sector and PCBs (ZESCO's experience with inventories and management of PCB-containing equipment)	<b>ZESCO</b>
10:00	The mining sector and PCBs (ZCCM-IH's experience with management of PCB-containing capacitors)	<b>ZCCM-IH &amp; ETI</b>
10:30	Coffee/tea	
11:00	Experience from the South African electricity sector.	<b>ESKOM</b>
11:45	Introduction to the elaboration of project design at the national level	<b>UNEP</b>
12:30	Lunch	
13:30	Working groups develop preliminary project planning indicators for each country	
15:00	Report back from PCB working groups and discussion	
15:30	Coffee/tea break	
16:00	Conclusions and recommendations for the PCB inventories	<b>UNEP</b>
16:30	Conclusions and recommendations for the dioxin and furan inventory	<b>UNEP</b>
17:00	Closure of the workshop	

**Friday 4 April**

Field trips to Chilanga cement factory and to PCB  
transformer sites in Siavonga District (near Lake Kariba)

### **A.3.LIST OF PARTICIPANTS**

#### **Training Workshop**

#### **Launch of the regional PCBs inventory project for member countries of the Southern Africa Development Community**

**Lusaka, Zambia**

**31 March to 4 April 2003**

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**B. SECOND REGIONAL WORKSHOP MAPATO, MOZAMBIQUE, 8 TO 12  
NOVEMBER 2004**

**B.1. PROGRAMME**

<b>Monday, 8 November</b>		
	<b>Opening</b>	
08:00-09:00	Registration of participants	
09:00-10:00	Welcome – Opening remarks	Mozambique, UNEP
	Introduction of participants	
	Objectives of the workshop, programme and structure	UNEP
	<b>SADC PCB inventory project</b>	
10:00-10:15	Introduction to the project	UNEP
10:15-10:45	PCB Provisions of the Stockholm Convention	UNEP
<i>10:45-11:15</i>	<i>Coffee break</i>	
11:15-11:45	Report of the regional coordinator on the SADC PCB project	ECZ
11:45-12:30	Summary country reports on the SADC PCB project (10 minutes each for oral summary.)	Angola, Botswana, DR Congo, Lesotho,
<i>12:30-13:30</i>	<i>Lunch</i>	
13:30-16:00	Country reports on the SADC PCB project (continued)	Malawi, Mauritius, Mozambique, Namibia, South Africa, Seychelles, Swaziland, Tanzania, Zambia, Zimbabwe
<i>16:00-16:30</i>	<i>Coffee break</i>	
16:30-17:30	Analysis of and commentary on the inventories	ETI and US EPA

<b>Tuesday, 9 November</b>		
09:00-09:30	Electricity utilities' perspective on the inventories	ZESA for SAPP
09:30-11:00	Group exercise: lessons learned during the inventory project	ECZ
<i>11:00-11:30</i>	<i>Coffee break</i>	
11:30-12:30	Report back from group exercise. Conclusion on SADC PCB project, including future needs and opportunities for regional approaches	UNEP and ECZ
<i>12:30-13:30</i>	<i>Lunch</i>	
	<b>PCB Action Plans</b>	
13:30-13:50	Role of action plans within the National Implementation Plans	UNEP
13:50-14:10	PCB priority setting and action plan: general aspects	UNEP
14:10-14:35	Inventory and Survey of PCBs and PCB transformers	GTZ
14:35-15:00	Risk assessment of PCB-containing equipment (transformers and capacitors)	ETI

15:00-15:30	Recent developments in the Open-ended-Working Group under the Basel Convention and technology evaluation by STAP	UNEP)
15:30 – 16:00	PCB transportation issues	ETI
16:00-16:30	<i>Coffee break</i>	
16:30-17:30	Storage and disposal options (including costs and logistics)	ETI and US EPA (intro.) Thermopower, Envio Ekokem

<b>Wednesday, 10 November</b>		
09:00-9:30	Activities of the Basel Convention Regional Centre (Pretoria) in English-speaking Africa	BCRC Pretoria
9:30-10:00	PCB priority setting and action plan: case study	ECZ, ETI, US EPA
10:00-11:00	Group exercise: developing an action plan based on hypothetical data	ECZ
11:00-11:30	<i>Coffee break</i>	
11:30-12:30	Report back from group exercise Conclusions and recommendations for PCB action plans	UNEP and ECZ
12:30:13:30	<i>Lunch</i>	
13:30-18:00	Field trip (TBC)	

<b>Thursday, 11 November: Action Plans for PCDD/PCDF</b>		
9:00-11:00	Introduction to the PCDD/PCDF Action Plans under the Stockholm Convention	UNEP
	Recent developments in the Expert Group on BAT/BEP	
	Case study: Cement kilns	
11:00-11:30	<i>Coffee break</i>	
11:30-12:30	Summary of PCDD/PCDF inventories	UNEP
	Prioritisation of sources	
	Best Available Techniques (BAT) and Best Environmental Practices (BEP) – general and regional aspects	
12:30:13:30	<i>Lunch</i>	
13:30-15:00	Case study - Waste management	UNEP
15:00-16:00	Group exercise: Development of strategies for unintentional POPs as part of the Action Plan <ul style="list-style-type: none"> <li>• Elements of the action plan for PCDD/PCDF</li> <li>• 5-year review of action plan</li> <li>• Legislation</li> <li>• Education / Training</li> </ul>	
16:00-16:30	<i>Coffee break</i>	
16:30-17:30	Conclusions and recommendations	UNEP

<b>Friday, 12 November: Action Plans for POPs Other than PCB, PCDD, PCDF</b>		
9:00-11:00	Notification for exemptions Registers for DDT and pesticides Implementation strategy Socio-economic factors Stakeholder involvement, information exchange Reporting requirements	UNEP
<i>11:00-11:30</i>	<i>Coffee break</i>	
11:30-13:00	Workshop report – recommendations and conclusions	
	Closure of the workshop	
<i>13:00-14:30</i>	<i>Lunch</i>	

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#### Conclusion of PCB inventory project for SADC countries and training on Action Plans for PCBs and dioxins/furans

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8 -12 November 2004

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## **C. THIRD REGIONAL WORKSHOP ARUSHA, TANZANIA – 26 TO 28 OCTOBER 2005**

### **C.1. OPENING REMARKS**

*Opening Speech by Mr. Raphael O. S. Mollel, Senior Permanent Secretary, Vice President's Office, Tanzania*

**Mr. Chairman,  
Mr. Nelson Manda, Regional Project Coordinator,  
Mr. Frank Moser, UNEP Representative,  
Workshop participants,  
Representative of the media,**

**Ladies and Gentlement,**

I appreciate the opportunity to take part in this very important workshop on conclusion of PCBs inventory done in the SADC Sub Region. Before anything else, I would like to express my sincere appreciation to all of you for availing your valuable time to participate in this workshop despite your other equally important commitments. I am pleased to take note of the presence of Ms. Lene Ecoignard the representative of the Basel Convention Regional Centre for English speaking African countries, the representative of the Southern Africa Power Pool and the resource persons from environmental NGOs – the Enviro and ETI. I welcome all of you to the workshop. I also take this opportunity to welcome our guests to Tanzania in particular to Arusha City. Arusha, which is at the North of Tanzania is very close to some famous tourist attractions. One of them being the Ngorogoro Crater. Ngorogoro Crater, the 8th Natural wonder of the World, is often called “Africas Eden”. I hope you will get some time to visit the National Park.

Mr. Chairman,

I am told that the objective of this workshop is to discuss the inventory findings of the SADC sub regional PCBs project and to develop a sub regional strategy to manage PCBs in the respective participating countries.

Polychlorinated biphenyls (PCBs) are group of synthetic organic chemicals that are used in transformers oil, capacitors, hydraulic tools, heat exchange liquids etc. However, unforeseen disadvantages of PCBs fluids are now of major concern worldwide. PCBs are in the initial list of the 12 problematic Persistent Organic Pollutants (POPs). PCBs are non-biodegradable; persistent in the environment as a consequence they spread and reach very far from the source. Due to degradation resistance, successive releases of these chemicals over time result in continued accumulation in the global environment. They are able to accumulate in fatty tissues of the body and are suspected of being carcinogenic. Toxic effects of PCBs in humans include chloracne, pigmentation of skin and nails, excessive eye discharge, swelling of eye lids, distinctive hair follicles and gastrointestinal disturbances.

In view of this problem, the international community called for urgent global action to reduce and eliminate their release into the environment. In May 2001 the Stockholm Convention on Persistent Organic Pollutants was adopted to address this challenge.. It reflects the consensus that POPs pose challenges to achieving sustainable development hence there is need for a sound global cooperation.

Mr. Chairman,

The Stockholm Convention intends to eliminate or restrict the production, use and/or releases of twelve chemicals that, due to their persistence in the environment, can affect human health throughout the globe, regardless of the location of their use. The Convention obliges all participating countries to take measures to eliminate or restrict the production, use and trade of intentionally produced POPs such as pesticides and PCBs. Other measures with respect to the unintentionally produced chemicals involve among others the use of best available techniques and best environmental practices to reduce emissions of POPs from various sources. It also requires Parties to ensure safe handling and disposal of POPs stockpiles and wastes. Furthermore the Convention restricts trade on POPs for acceptable uses and environmentally sound disposal of wastes. This calls for thorough review of the existing policies and laws so as to accommodate provisions of the Convention.

Mr. Chairman,

The Convention has banned production of PCBs. It allows the use of PCB fluids in equipment that are in use until 2025. Parties are required to develop strategies for identifying stockpiles of PCBs and products and articles in use and wastes containing PCBs and contaminated sites. I am glad to note that our sub region took an important step of undertaking a survey of PCBs. It is my hope that the results reflect the real situation and hence this workshop will be able to use them to identify strategies for eliminating PCBs in the SADC sub region. I urge you to develop realistic strategies and action plans which will prevent further contamination of our soils and waters and protect our people from long term effects of PCBs which can destruct national efforts to fight poverty in a move to achieve sustainable development.

Mr. Chairman,

In Tanzania, the survey results revealed that there are 418 equipment containing 273 tones of oil suspected to contain PCB. Also 170 equipment containing 481 tones of oil can be classified as “non PCB”. These equipment are mainly transformers and oil circuit breakers. There are 216 obsolete transformers containing 93.4 metric tones of oil suspected to contain PCB and 17 oil circuit breakers. Despite these preliminary results I am also informed that chemical analysis was not undertaken as a necessary step to generate precise information on concentration of PCBs in the identified equipment. The survey also identified a number of constraints such as low awareness among workers of utility company on handling of PCB containing equipment, frequent leakages and spills of transformer oils, inadequate capacity to monitor PCB releases, inadequate policies and legislation, lack of appropriate technologies for treatment of PCB in equipment in use and for sound disposal of PCB wastes.

As far as the issue of PCBs is concerned, Tanzania’s NIP identified some actions such as: Development of facilities for disposal of PCBs; establishment of cleanup and remediation schemes of contaminated sites; development of programmes for raising awareness on PCBs; establishment of legislation and enforcement regimes on PCBs; strengthening institutional capacity to handle PCBs; enhancing information generation, access and dissemination; and strengthening local research capacity on alternative technologies. I am sure other countries came up with similar ideas or better approach than what I mentioned. During this workshop you will be able to discuss various approaches and hence agree on best solution to the present problem.

Mr. Chairman,

Tanzania as a Party to the Stockholm Convention has just completed preparation of its National Implementation Plan (NIP) for reducing and/or eliminating POPs. The issue of eliminating PCBs has been given high priority in the NIP. Depending on the availability of funds the immediate activity would be to dispose of the identified PCBs and to clean up the contaminated sites. Also to perform confirmatory tests of oils suspected to contain PCBs.

Mr. Chairman,

The target of SADC countries of eliminating PCBs in the sub region in 2010 can be achieved through continued cooperation among the member states in the efforts to implement the respective National Implementation Plans (NIPs) formulated by each country for this purpose. However most of these countries have limited resources to meet the target. I encourage UNEP and other development partners to avail SADC countries with adequate resources to enable them to complete the inventory work and implement national strategies and action plans on management of PCB.

Mr. Chairman,

We have just touched the surface in tackling this problem of POPs. More work is yet to be done. We have many problems to solve as far as POPs issues are concerned. I am confident that participants will get enough time to critically examine the inventory results of PCBs in order to be able to formulate strategies of phasing out PCBs in the region. I urge all participants to freely and constructively deliberate on this matter during these three days of the workshop.

Mr. Chairman,

Let me take this opportunity to thank GEF for financing this project. I also thank UNEP and the Environmental Council of Zambia for the technical assistance which resulted into successful completion of the sub regional project on inventory of PCBs. Once again, I commend the organisers of this training workshop for their tireless effort that enabled this event to take place. Distinguished participants, Ladies and Gentlemen, with these few remarks, I have the pleasure to declare the training workshop on inventory of PCBs officially open.

I thank you all for your attention.

*Opening remarks by Mr. Frank Moser, UNEP Chemicals*

Karibu, welcome to the UNEP Chemicals sub-regional workshop for SADC member countries to conclude their national PCB inventory projects under the Stockholm Convention on Persistent Pollutants here in Arusha.

UNEP Chemicals is grateful to undertake this workshop in this wonderful country. On my first visit to Tanzania in the last two days, I had the chance to see amazing places like the Ngorongoro Crater and of course Arusha itself.

As the Stockholm Convention entered into force in May 2004, this workshop is an important meeting for the SADC region. This is underlined by the presence of the guest of honour, Senior Permanent Secretary from the Vice President's Office of Tanzania, Mr. Raphael

Mollel. Welcome to this workshop. Your presence shows the strong commitment of the Government of Tanzania to play a lead role in the implementation of the Stockholm Convention in the SADC region.

I would like to acknowledge the presence of Ms. Madete from the Vice President's Office of the Government of Tanzania and would like to thank her and her team for the great efforts that made this workshop only possible, especially in the light of the upcoming elections.

I also would like to acknowledge the presence of Mr. Nelson Manda, the Regional Coordinator of the project and would like to thank him for all his work and his experience he put in the management of this project in the past two years.

I welcome all participants and representatives from the SADC member countries, the industry sector and the non-governmental organizations.

Mr. Urs Wagner from the Swiss company ETI, who assisted UNEP Chemicals throughout the implementation of this project, will be with us again here in Arusha to assist us with his long experience in managing PCBs and PCB-containing electric equipment.

In particular, I would like to thank the Impala hotel management and staff, especially Mr. Msabila, for their hard work and professional handling of the workshop arrangements.

I bring greetings from Dr. John Buccini, the Director of UNEP Chemicals. He would have particularly liked to join us himself for this important workshop, but this became impossible due to other equally important and pressing commitments that he had to attend. He has wished all of us a successful workshop.

From UNEP Chemicals' point of view, we are particularly interested in the outcome of this workshop and I am convinced that we will come up with recommendations that will carry the SADC region forward to upcoming activities in the field of PCBs.

Asante sana, thank you very much and welcome to this workshop.

## C.2.PROGRAMME

<b>Wednesday, 26<sup>th</sup> October</b>		
<b>Opening Ceremony</b>		
<b>Chairperson Mr. Eric. K Mugurusi, Director of Environment, Vice Presidents Office</b>		
8:00-9:00	Registration of participants	Secretariat
9:00-9:05	Briefing Remarks	Chairperson
9:05-9:15	Statement by the Representative of UNEP	Mr. Frank Moser, UNEP Chemicals
9:15-9:25	Statement by the Representative of the Environmental Council of Zambia	Mr. Nelson Manda, Regional Project Coordinator
9:25-9:45	Opening Speech by the Guest of Honour	Mr. Raphael O. S. Mollel, Senior Permanent Secretary, Vice President's Office
9:45-10:00	<i>Health Break</i>	All
<b>SADC PCB inventory project</b>		
10:00-10:15	Introduction to the project	UNEP
10:15-10:45	PCB Provisions of the Stockholm Convention	UNEP
10:45-11:15	<i>Health break</i>	
11:15-11:45	Report of the regional coordinator on the SADC PCB project	ECZ
11:45-12:30	Summary country reports on the SADC PCB project (10 minutes each for oral summary.)	Angola, Botswana, DR Congo, Lesotho
12:30-13:30	<i>Lunch</i>	
<b>Chairperson, Lyson Kampira, Malawi</b>		
13:30-16:00	Country reports on the SADC PCB project (continued)	Malawi, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, Tanzania, Zambia, Zimbabwe
16:00-16:30	<i>Health break</i>	
16:30-17:30	Analysis of and commentary on the inventories – part 1	ETI, ECZ and UNEP

<b>Thursday, 27<sup>th</sup> October</b>		
<b>Chairperson, Edmund Dhlamini, Swaziland</b>		
9:00-9:30	Analysis of and commentary on the inventories – part 2	ETI, ECZ and UNEP
9:30-9:40	Tanzania's technical capacity for PCB analysis	Government Chemist Laboratory Agency of Tanzania
9:40-10:10	Challenges and Opportunities for PCB management in the SADC Region-Electricity utilities' perspective	SAPP

10:10-10:30	<i>Health break</i>	
10:30-11:10	PCB inventories and awareness raising: experiences from South America	ETI
11:10-11:50	Presentation of national PCB action plans	Malawi and Tanzania
11:50-12:30	PCB priority setting and action plans	UNEP
12:30-13:30	<i>Lunch</i>	
<b>Chairperson, Lira Molapo, Lesotho</b>		
13:30-14:00	Risk assessment of PCB-containing equipment (transformers and capacitors)	ETI
14:00-14:40	(Interim) Storage of phased-out PCB containing equipment: Needs, opportunities and practicalities	ETI
14:40-15:00	PCB disposal options	Video presentation
15:00-15:30	The NGO perspective on environmentally sound PCB management in the SADC region	AGENDA
15:30-16:00	<i>Health break</i>	
16:00-17:30	Future needs and opportunities for SADC member countries with regard to the environmentally sound management of PCBs – breakout groups and discussion	UNEP, ECZ, ETI

<b>Friday, 28<sup>th</sup> October</b>		
9:00-12:00	Field trip to ABB TANELEC Ltd., Arusha	
12:00-13:00	<i>Lunch</i>	
<b>Chairperson Mr. Eric. K Mugurusi, Director of Environment, Vice Presidents Office</b>		
13:00-13:30	Commentaries on the field trip	ECZ, UNEP & ETI
13:30-14:00	Activities of the Basel Convention Regional Centre (Pretoria) in English-speaking Africa	BCRC Pretoria
<b>Closure</b>		
14:00-14:10	Remarks by Representative of UNEP	Mr. Frank Moser, UNEP Chemicals
14:10-14:20	Remarks by Representative of ECZ	Mr. Nelson Manda, Regional Project Coordinator
14:20-14:30	Closing Remarks by Representative of the Government of Tanzania	Mr. Eric. K Mugurusi, Director of Environment, Vice Presidents Office

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