2024

PCB Webinar Series

Webinar #2

Development of PCB Inventories

Webinar Report

31 October 2024

unitar
United Nations
Institute for Training and Research

Introduction

Polychlorinated Biphenyls (PCB) are a class of synthetic chlorinated organic chemicals that represent a risk as they are toxic to wildlife and humans, persistent, and can bioaccumulate and travel long distances in the environment. Furthermore, they are classified as carcinogens, and they can suppress the immune system, which can increase the risk of developing a wide variety of diseases. There is scientific evidence that humans are exposed to PCB through ingestion of animal fats, inhalation, and absorption through the skin. Workers in the electrical sector can be particularly exposed to PCB as these chemicals may be present in older electrical equipment such as transformers, capacitors and fluorescent lighting ballasts.

The PCB have been listed under the **Stockholm Convention** as Persistent Organic Pollutants (POPs). Parties that ratified the Stockholm Convention aim to eliminate the use of PCB by 2025 and to provide their environmentally sound waste management by 2028.

Noting that the environmentally sound management of PCB requires enormous efforts and specific technical knowledge from different stakeholders -from national governments, companies, and international and civil society organisations, among other sectors-UNITAR developed the **2024-2025 PCB Webinar Series** to raise awareness and enhance global and national capacities.

This Webinar #2, "**Development of PCB Inventories**," to introduce key technical and organizational aspects, as well as national experiences, in developing PCB Inventories, including considerations on Sampling, Screening, and Analysis. This event also served to collect views and questions from participants to advance in the definition of topics for the following webinars of the series.

Agenda

2:00 - 2:05 PM	Opening, agenda, links to resources	Sofia Schlezak, UNITAR PCB Projects Coordinator
2:05 - 2:25 PM	Inventory/assessment proceedings: An introduction	Mario Mendoza, UNITAR PCB Sr Expert
2:25 - 2:45 PM	Practical-related inventory/assessment proceedings	Urs Wagner, PCB Sr Expert
2:45 – 3:00 PM	National experience in Perú	Marisa Quiñones, Former PCB National Project Coordinator in Perú
3:00 – 3:05 PM	Remarks from the BRS Secretariat	Agustin Harte, Programme Management Officer, PCB Focal Point, BRS Secretariat
3:05 - 3:30 PM	Ask the Expert Session	Urs Wagner, PCB Sr Expert Mario Mendoza, UNITAR PCB Sr Expert

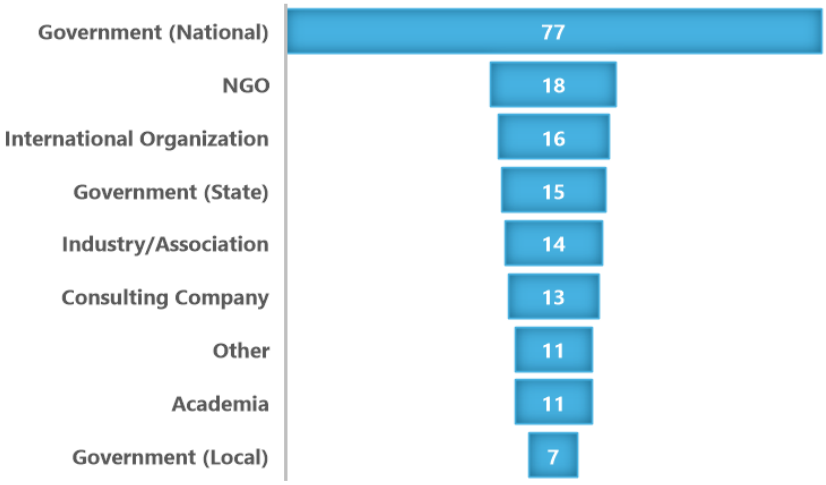
Resources

The resources for this webinar (flyer, presentations, satisfaction Survey, recording) are available in the Share Folder https://unitaremail.sharepoint.com/:f:/g/cwm/EkIqhjpF5UtBr-u0VHob-8ABYmo9BjlgjN8GFjbt9uO72w?e=ZfNpgz and in the PCB e-Learning Platform https://pcb.unitar.org

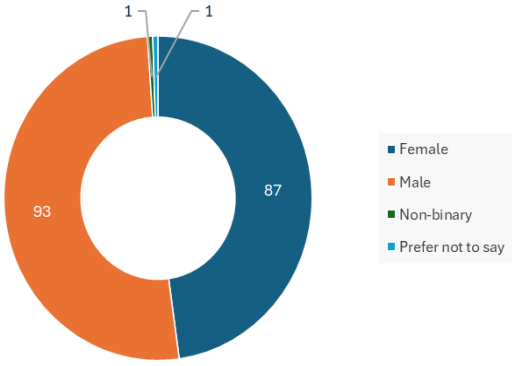
Attendance breakdown and representation

Total attendance: 182 participants

SECTORS



GENDER DISTRIBUTION



COUNTRIES REPRESENTATION

Country	#	Country	#	Country	#	Country	#
Peru	15	Portugal	3	Venezuela	2	Italy	1
Argentina	10	Uganda	3	Yemen	2	Kazakhstan	1
Costa Rica	7	Uruguay	3	Albania	1	Korea, Republic of	1
South Africa	7	Afghanistan	2	Belarus	1	Madagascar	1
Brazil	6	Antigua and Barbuda	2	Belgium	1	Maldives	1
Senegal	6	Austria	2	Cameroon	1	Mauritius	1
United States	6	Bangladesh	2	Chile	1	Mexico	1
Colombia	5	Benin	2	Comoros	1	Morocco	1
United Kingdom	5	Burundi	2	Congo, Democratic Republic of the	1	Myanmar	1
Côte d'Ivoire	4	Canada	2	Croatia	1	Pakistan	1
Guyana	4	Egypt	2	Dominica	1	Panama	1
Honduras	4	El Salvador	2	Dominican Republic	1	Romania	1
Zambia	4	Ghana	2	Ecuador	1	Russia	1
Hungary	3	Kenya	2	Eritrea	1	Slovakia	1
Indonesia	3	Mali	2	Ethiopia	1	Sudan	1
Kuwait	3	Mongolia	2	France	1	Sweden	1
Moldova, Republic of	3	Philippines	2	Germany	1	Switzerland	1
Nigeria	3	Sierra Leone	2	India	1	Togo	1
Poland	3	Somalia	2	Ireland	1	Turkey	1

Questions received and answered

DISCLAIMER: PCB experts suggest the following answers based on their academic training and professional experiences. Please refer to official materials for legal provisions related to the Stockholm and Basel conventions.

Q: Can we get the recording and the presentations after the webinar? A: Yes, all these materials will be available online in our platform: UNITAR PCB learning platform/Webinar series/ 2024-2025 PCB Webinar Series — Webinar #2: https://pcb.unitar.org/webinar-series/webinar-2/

Q: Will we get certificate for participating this session? A: Yes, the certificate of participation will be sent by email to those that complete the satisfaction survey and a small quiz by November 15.

Q: Where can the participants find more information? A:

- Stockholm Convention Website https://chm.pops.int/
    - PCB-specific material in the SC website: GO TO **Stockholm Convention > Implementation > Industrial POPs > PCB > Overview**
    - SWIG updates: GO TO **Stockholm Convention > Implementation > Industrial POPs > PCB > SIWG on PCB > Overview**
    - SWIG documents https://chm.pops.int/Implementation/IndustrialPOPs/PCB/SIWGonPCB/Overview/tabid/9725/Default.aspx
    - PCB disposal and PCB in open applications https://chm.pops.int/Implementation/IndustrialPOPs/PCB/Guidance/tabid/665/Default.aspx
- Basel Convention Training Manuals: https://www.basel.int/Portals/4/Basel%20Convention/docs/meetings/sbc/workdoc/TM-A.pdf/ and https://www.basel.int/Portals/4/Basel%20Convention/docs/meetings/sbc/workdoc/TM-B.pdf/
- List of recognised PCB elimination facilities/providers (2004) https://chm.pops.int/Implementation/IndustrialPOPs/PCB/Guidance/tabid/665/Default.aspx
- UNITAR PCB e-learning platform https://pcb.unitar.org/pcb-elearn/

SCREENING METHODS

- Clor-N-Oil Introduction on You Tube https://www.youtube.com/watch?v=mqoFYL7tr4c&t=13s
- L2000DXT Introduction on You Tube https://www.youtube.com/watch?v=pt4JsqvF2y4&t=16s

CAPACITORS

- Swiss capacitor list in German, French and Italian https://www.chemsuisse.ch/de/fachliches/pcb

Australian Identification of PCB containing capacitors: https://www.nepc.gov.au/sites/default/files/2022-09/anzecc-gl-identification-pcb-containing-capacitors-information-booklet-electricians-and-electrical.pdf

Q: In one presentation, it is shown that equipment is classified with the year limit set to 1993. What is the basis for setting the year 1993 as the cutoff? Why are PCBs still appearing in transformers even in 2024? A: 1993 was the latest year reported when PCB production ceased globally (Russian Federation). Other producers reported earlier dates. Nevertheless, this year is just a reference and could be different within a specific country. It is important to bear in mind that even if a transformer was manufactured after 1993, there is a risk of cross contamination during maintenance. This is an important concept because it is estimated that around 30% of the PCB contamination in equipment is due to cross contamination. Therefore, a serious maintenance plan and recording process is key to minimize cross contamination.

Q: According to your experience and/or in the guidance: how do you ensure having a homogenous "PCB sample" from waste oil (either from drums/containers or from wasted transformers) with potential water and other impurities? A: When it comes to sampling of tanks, containers, drums or even phased out transformers, our recommendation is to use either glass pipettes (as they can be cleaned and reused) or hand pumps with one off plastic pipes. The pipette should be long enough to obtain the sample above the first third of the height of the liquid and the sample shall be taken from three different heights and mixed in the glass vial.

Q: Is there a list of appliances and equipment that contain PCBs? A: Yes, the Basel Convention Guidance on the environmentally sound management of PCB provides a table with a list of all electric and other equipment that may contain PCB. Please, see the resources listed above. In addition, in the PEN section of the BRS website, various factsheets are available, too.

Q: Are there any products that contain PCBs? A: You can find detailed information in the documents developed under the work of the SIWG: https://chm.pops.int/Implementation/IndustrialPOPs/PCB/Guidance/tabid/665/Default.aspx

Other questions

Q: How was the success in eliminating the PCB in equipment with 5000 ppm of PCB with chemical treatment? A: In the Peru case, the chemical treatment was applied to 86 tons of equipment (17 tons of oil). In the beginning, the PCB concentration (between 51.2 and 469 ppm) was, on average, 134 ppm. Before the treatment, the oils were homogenized in tanks of 2000L (each batch was 2000L). After the treatment, the average of the PCB concentration was 4.8 ppm. The treatment time is determined by the PCB concentration in the oil. A high PCB concentration in the oil could require more cycles on the reactor. The total time of the treatment stage was two months, and the equipment collection and the retro-filling on the places around the country took more time (approximately half a year)

Q: What alternatives could be implemented when there is a low response (mainly due to lack of knowledge) from the owners of equipment with PCBs? What approach have you chosen to force companies that own transformers to energize the electrical network? A: Governments and companies have to involve not only technicians, experts, staff working on the field who will be looking at the samples, running the screening, but also middle and high-level decision makers and technicians. They are key players to find the support the projects need to make real and effective changes. Additionally, a detailed planning is another key element for the success of the activities.

Q: How to conduct PCB inventories without knowing the geographical distribution of transformers? What strategies to use to identify small PCB holders distributed in different locations? One of the most important issues is the planning phase. One of the first steps is the identification of stakeholders. Now the majority is easy to find, these are the utilities, but there are many more players such as the Army, Navy and air forces, for instance, as they were usually in both open and closed application, big consumers of PCB and their doors are not always open because of security reasons. It is recommended to start with roundtable discussions with representatives from each sector and invite their engineers. There are small size companies, such as maintenance workshops, crap dealers, which are not known and governments should make an effort in talking to the local authorities in the regions, small cities, and identify them. The understanding of needs towards environmental sound management with the PCB in the private industry and community sector is still often not available. There is a fear of costs and work implications. It means PCB projects have to carefully talk with these groups and convince them while still it makes sense to open their doors and participate in the activities. The workers and the public are either not aware of the PCB topics, they are probably not prepared to change their behaviour or they simply have other prior priorities because they are not interested in the topic, so therefore there is need for continue awareness raising and capacity building and achieve a voluntary participation of all stakeholders. That's a big task, but it is possible.

Next steps

We are developing our next webinar on National Legislation and Facility Management Plans, which is scheduled for **mid-December 2024**. Please email us and let us know your preferred topic for our Webinars in 2025!

Comments? Questions?

cwm@unitar.org