PCB
Polychlorinated Biphenyls

\[ \text{Chemical Structure} \]
PCB - A FORGOTTEN LEGACY?
1. Brief background
2. Assessment, challenges and limitations
3. Progress according to region
4. Food for thought
Stockholm Convention Annex A, Part II, paragraph (a):

- Each Party shall make determined efforts to **identify, label and remove from use equipment** containing greater than 10% PCB and volumes greater than 5 litres; equipment containing greater than 0.05% PCB and volumes greater than 5 litres; and equipment containing greater than 0.005% PCB and volumes greater than 0.05 litres.

Stockholm Convention Annex A, Part II, paragraph (e):

- Each Party shall make determined efforts designed to lead to environmentally sound waste management of liquids containing polychlorinated biphenyls and equipment contaminated with polychlorinated biphenyls having a polychlorinated biphenyls content above 0.005 per cent, in accordance with paragraph 1 of Article 6, as soon as possible but no later than 2028, subject to review by the Conference of the Parties.

Stockholm Convention Annex A, Part II, paragraph (h):

- The reports described in subparagraph (g) shall, as appropriate, be considered by the Conference of the Parties in its reviews relating to polychlorinated biphenyls. The Conference of the Parties shall **review progress towards elimination of polychlorinated biphenyls** at five year intervals or other period, as appropriate, taking into account such reports.
AVAILABLE GUIDANCE
TECHNICAL GUIDANCE

✓ Inventories
✓ Environmental Sound Management
✓ Disposal
✓ Available destruction technologies
✓ Technical guidelines - negotiated

PCB ELIMINATION NETWORK (PEN)
A MULTI-STAKEHOLDER MECHANISM

Thematic Groups:
- Inventories
- Maintenance, handling and interim storage of equipment containing PCB
- Disposal of PCB and remediation of contaminated sites
- Open Applications of PCB

PEN Global Network
- Advisory Committee (16)
- Thematic Groups (4)
- Members (435)
# PEN ADVISORY COMMITTEE MEMBERS

## Party-nominated Members

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Name</th>
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<tbody>
<tr>
<td>Africa</td>
<td>Nigeria</td>
<td>Stella Uchenna Mojekwu</td>
</tr>
<tr>
<td></td>
<td>Rwanda</td>
<td>Aloys Kamatari</td>
</tr>
<tr>
<td>Asia and Pacific</td>
<td>China</td>
<td>Jinhui Li</td>
</tr>
<tr>
<td></td>
<td>Iran</td>
<td>Sanaz Jafarzadeh</td>
</tr>
<tr>
<td>Eastern European Group</td>
<td>Moldova</td>
<td>Ion Barbarasa</td>
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<tr>
<td></td>
<td>Romania</td>
<td>Mihaela Claudia Paun</td>
</tr>
<tr>
<td>GRULAC</td>
<td>Costa Rica</td>
<td>Anna Ortiz</td>
</tr>
<tr>
<td></td>
<td>Jamaica</td>
<td>Tara Dasgupta</td>
</tr>
<tr>
<td>WEOG</td>
<td>TBD</td>
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## Other Stakeholders

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>NGO</td>
<td>Jindrich Petrlik - International POPs Elimination Network (IPEN)</td>
</tr>
<tr>
<td>Technical Professional</td>
<td>Urs Wagner - Environmental Technology Limited (ETI)</td>
</tr>
<tr>
<td>Industry</td>
<td>Hugues Levasseur - Trédi/Séché Environnement</td>
</tr>
<tr>
<td>Holder of PCB</td>
<td>Claudia Cabal - Administración Nacional de Usinas y Transmisiones Eléctricas (UTE)</td>
</tr>
<tr>
<td>IGO</td>
<td>TBD</td>
</tr>
<tr>
<td>MEA</td>
<td>Kei Ohno-Woodall - BRS Secretariat</td>
</tr>
</tbody>
</table>
BECOME A MEMBER OF THE PEN

Membership of the PEN is open to:

- Governments
- Intergovernmental organizations,
- Donors,
- PCB holders,
- Non-governmental organizations,
- Industry, experts/academia
- Business sectors relevant to PCB

Main roles of PEN members:

- Provide support for the implementation of the PEN’s work plan
- Provide quality-assured information through the sharing of experiences and knowledge on the environmentally sound management of PCB and their alternatives
- Provide financial support for the network’s activities, as appropriate
- Participate in PEN meetings and discussion forums

To apply: please send an e-mail to the Secretariat of the PEN (UNEP’s Chemicals and Waste Branch): science.chemicals@unep.org
ASSESSMENT, CHALLENGES AND LIMITATIONS
CONSOLIDATED ASSESSMENT OF EFFORTS MADE TOWARDS THE ELIMINATION OF PCB

Sources of information:

- Stockholm and Basel Convention Reports
- Initial and updates country plans
- GEF projects
- Technical reports, scientific literature

Adjustments, assumptions and/or extrapolations made include:

- **Oil reported in volume**: converted to mass, assuming density of 1.5 kg/L
- **Values with ranges**: the middle point was selected
- **Data reported for a time period**: evenly distributed across years
- **Extreme outliers**: adjusted and/or eliminated after examination
- **‘Double counting’**: efforts made to minimize such risk
Mostly related to quality of national inventories:

- **Quantitative data:** For 16 countries no quantitative data is available
- **Inventories:** Inventories are preliminary
- **Open applications:** Data on open applications is scarce
- **Changes over time:** Insufficient data to identify changes over time
- **Total mass:** Often no report on the total mass of PCB
- **Units:** Unclear units
- **Reference years:** Unknown reference years
- **Inconsistency:** Inconsistency between and within reports
- **Cross contamination:** No cross contamination counted issues – appears anyway
HOW MUCH PCB WAS PRODUCED?

- **Estimate:** 1 – 1.5 million tonnes
- **By whom?** 12 countries and 17 companies
- **When?** Between 1929 - 1993
- **Ongoing?** Only in the Democratic People’s Republic of Korea

**Historic use of PCB**

- **≈ 48%** Transformer oil
- **≈ 21%** Small capacitors
- **≈ 21%** Open Applications
- **≈ 10%** Others
- **Others**
## HOW MUCH PCB WAS PRODUCED?

<table>
<thead>
<tr>
<th>Country</th>
<th>Start of production</th>
<th>End of production</th>
<th>Amount (1,000 t)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Earliest estimate</td>
<td>Latest estimate</td>
<td>Lowest estimate</td>
</tr>
<tr>
<td>Korea (DPR)</td>
<td>1960s</td>
<td>&gt;2006</td>
<td>25</td>
</tr>
<tr>
<td>Soviet Union/Russia</td>
<td>1938</td>
<td>1993</td>
<td>180</td>
</tr>
<tr>
<td>Spain</td>
<td>1930</td>
<td>1986</td>
<td>25</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>1959</td>
<td>1984</td>
<td>21</td>
</tr>
<tr>
<td>West Germany</td>
<td>1930</td>
<td>1983</td>
<td>59</td>
</tr>
<tr>
<td>Italy</td>
<td>1958</td>
<td>1983</td>
<td>24</td>
</tr>
<tr>
<td>France</td>
<td>1930</td>
<td>1984</td>
<td>102</td>
</tr>
<tr>
<td>Poland</td>
<td>1966</td>
<td>1977</td>
<td>2</td>
</tr>
<tr>
<td>USA</td>
<td>1929</td>
<td>1977</td>
<td>476</td>
</tr>
<tr>
<td>China</td>
<td>1960</td>
<td>1983</td>
<td>7</td>
</tr>
<tr>
<td>Japan</td>
<td>1952</td>
<td>1972</td>
<td>59</td>
</tr>
<tr>
<td>UK</td>
<td>1951</td>
<td>1977</td>
<td>66</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>1,046</strong></td>
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**Source:** “Consolidated Assessment of Efforts Made Toward the Elimination of Polychlorinated Biphenyls”, UNEP, 2016
**MASS ELIMINATED**
PROGRESS ACCORDING TO REGION

Asia and Pacific and WEOG account for more than 90%

Predominantly used disposal strategies:

- **Domestic destruction:** WEOG and Asia and Pacific
- **Export:** GRULAC, Eastern European Group and Africa

**Shares of total mass eliminated by region**

- **24%** WEOG
- **68%** Asia and Pacific
- **4%** Eastern European Group
- **3%** GRULAC
- **>1%** Africa
MASS ELIMINATED
PROGRESS ACCORDING TO REGION

PCB Mass Eliminated by UN Region Groups: 1990 - 2016

Approaches in Disposing of PCB Wastes
- Destroyed (domestically) (tonnes)
- Exported (tonnes)
- Disposed (tonnes)

Total Mass Eliminated by Region (tonnes)
- 6672
- 76,959
- 111,574
- 835,487
- 2,818,061

Source: UNEP Chemicals and Waste Branch
MASS TO BE ELIMINATED
PROGRESS ACCORDING TO REGION

Predominantly used disposal strategies:

- **Domestic destruction:** WEOG and Asia and Pacific
- **Export:** GRULAC, Eastern European Group and Africa

**Shares of total mass eliminated by region**

- 77% Asia and Pacific
- 6% WEOG
- 7% GRULAC
- 7% Eastern European Group
- 4% Africa
MASS TO BE ELIMINATED
PROGRESS ACCORDING TO REGION
MASS TO BE ELIMINATED
BY CATEGORY

- Transformers: 34%
- Capacitors: 1%
- Transformers and capacitors: >1%
- Equipment: 52%
- Others: 10%
- Oil: 2%
- Drums: >1%
- Open applications: >1%
- Unspecified: >1%
ELIMINATED – TO BE ELIMINATED

Amount eliminated:
- Estimated ca. 3 million tonnes
- 17% of total

Amount to be eliminated:
- Estimated ca. 14 million tonnes
- 83% of total

Source: Estimates based on data gathered by UNEP Chemicals and Waste Branch, 2016
IS PCB A FORGOTTEN LEGACY?

Joint UNEP/OCHA Environment Unit, field visit of the interagency team
FOOD FOR THOUGHT

- Are we in the **right track**?
- **How do we change the trend?**

- Can PCB be seen as an **opportunity to change**?
- **Strategies: joining efforts** with other initiatives and programmes

→ **Urgent need to step-up efforts** to meet the **2025 and 2028 goals** of the Stockholm Convention
THANK YOU FOR YOUR ATTENTION!

Web references

UNEP Chemicals and Waste Branch:
www.unep.org/chemicalsandwaste/

For questions, please contact:

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