Global NIP Update Webinar - “Activity Options for Action Plans on the Management and Elimination of PCBs and POP Pesticides”, 16. December 2025, 14:00 -16:30 CET, UTC+1

Action Plan Options and Considerations for Polychlorinated Biphenyls (PCBs) and Polychlorinated Naphthalenes (PCNs)

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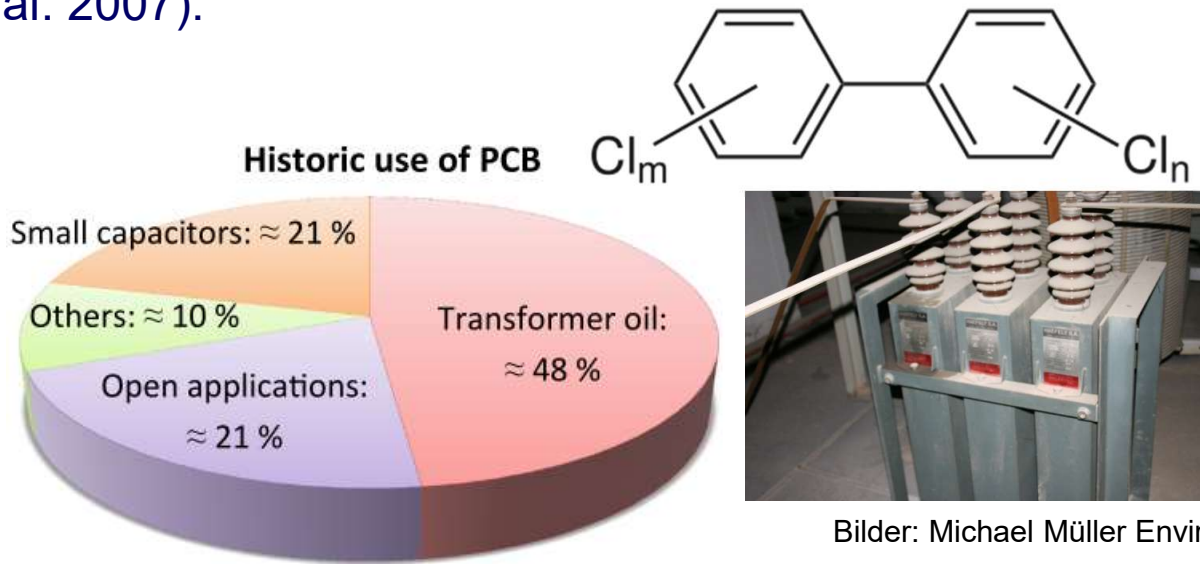
Polychlorinated Biphenyls (PCBs) – Historic Production and use

- PCBs have been used in a wide range of closed & open applications.
- Closed applications (e.g. transformer oils, capacitors, hydraulic oils).
- Open applications (e.g. sealants, paints, cutting oils) particular relevant for exposure.
- Approx. 1.3 million tonnes of PCB have been produced in history between 1929 and 1990 (Breivik et al. 2007).



Bilder: Michael Müller Enviro-Consultant

Breivik, K., et al.. 2007 Science of the Total Environment,. 377, 296-307.

PCBs - Stockholm Convention Requirement

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

- With regard to the **elimination of the use of polychlorinated biphenyls in equipment (e.g. transformers, capacitors or other receptacles containing liquid stocks) by 2025**, subject to review by the Conference of the Parties, **take action in accordance with the following priorities:**

  (i) **Make determined efforts to identify, label and remove from use equipment** containing greater than 10 per cent polychlorinated biphenyls and volumes greater than 5 litres;

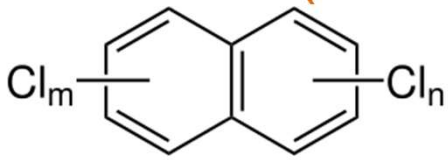
  (ii) Make determined efforts to identify, label and remove from use equipment containing greater than 0.05 per cent polychlorinated biphenyls and volumes greater than 5 litres;

  (iii) Endeavour to identify and remove from use equipment containing greater than 0.005 percent polychlorinated biphenyls and volumes greater than 0.05 litres

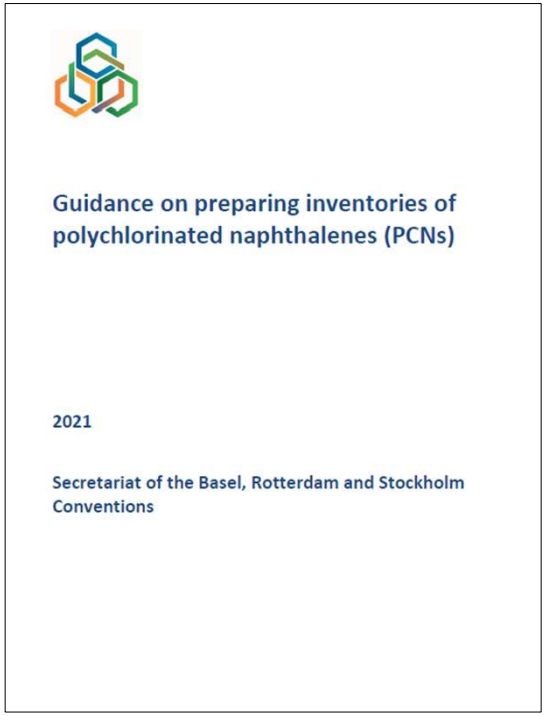
Stockholm Convention Annex A, Part II, paragraph (e):

- Each Party shall **make determined efforts designed to lead to environmentally sound waste management of liquids containing PCB and equipment contaminated with PCB having a PCB 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.

Managing remaining industrial polychlorinated naphthalenes (PCNs) **within PCB management**



- PCNs have been listed in the Convention in Annex A and C in 2015.
- **PCNs have been used in closed application as PCBs but mainly in the 1930s to 1960s. Mainly** in **capacitors** and less in transformers and hydraulic oils (UNEP 2017).
- **PCNs have also been used in the same open applications as PCBs** (additives in paints, sealants, rubber, cable sheaths, as metal working fluids).
- The total PCN production was approx. 150,000 t (**only 10% of PCBs**).
- **Due to the lower use volume and earlier use, industrial PCNs have much lower overall relevance compared to PCBs.**
- **PCNs can be managed within the PCB management: they are detected by the chlorine test kits for screening of PCB oils and can be integrated in the instrumental screening for chlorine positive samples.**
- Up to now only one case of a PCN equipment confirmed in Japan.

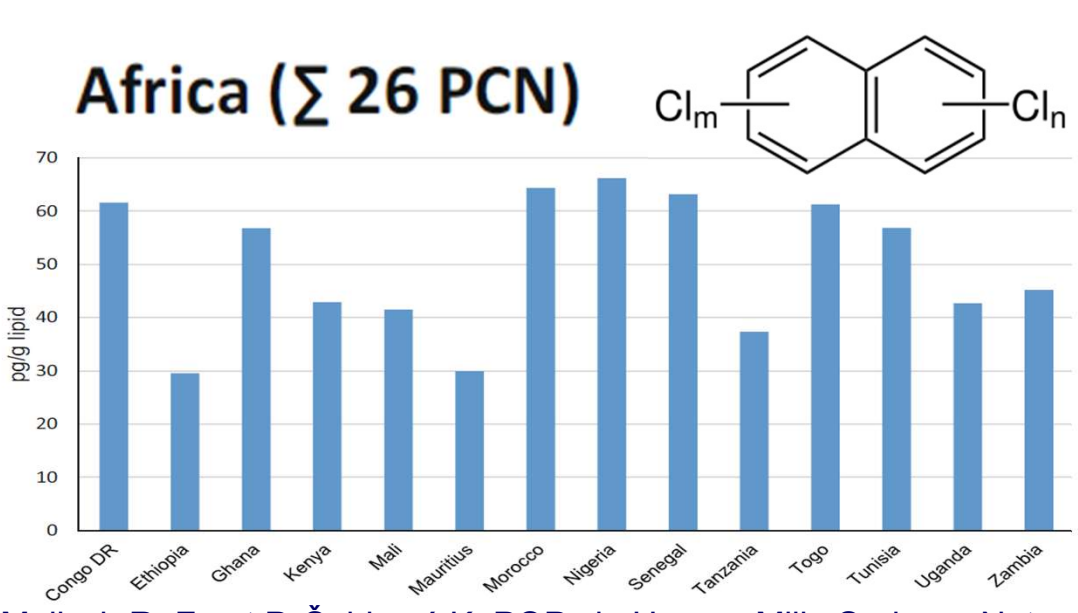

Guidance on preparing inventories of polychlorinated naphthalenes (PCNs)

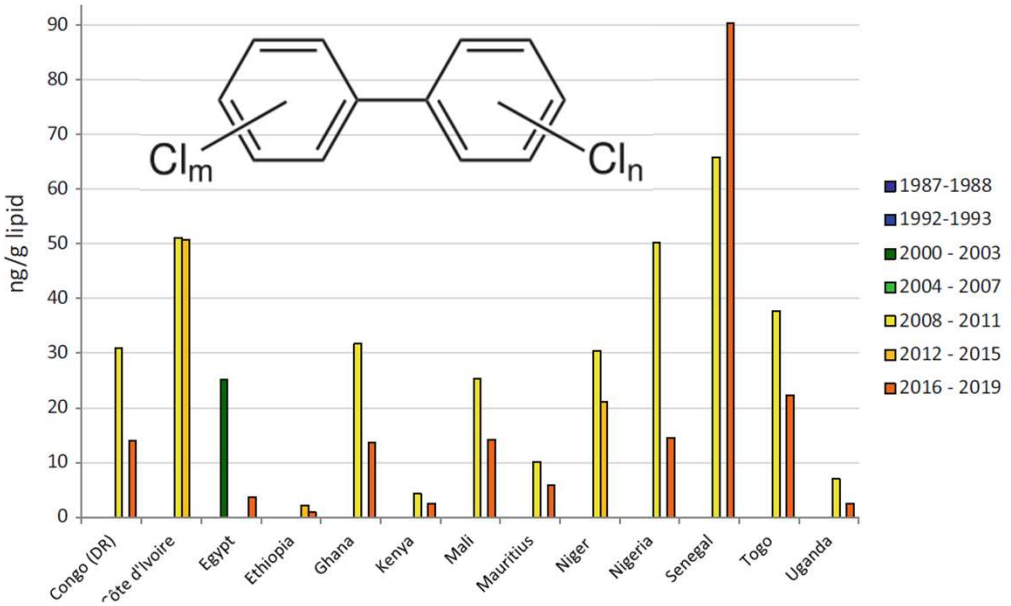
2021

Secretariat of the Basel, Rotterdam and Stockholm Conventions

PCNs in breast milk in Africa & EU countries (UNEP/WHO)

- **Levels of PCNs in breast milk are 2 to 3 orders of magnitude lower compared to PCBs!**
- **This show the low relevance of PCNs compared to PCBs for average human exposure.**
- **Management of transformers, capacitors etc. can focus on PCBs (and mention PCNs).**





Malisch R, Fürst P, Šebková K, POPs in Human Milk. Springer Nature; 2023. https://link.springer.com/book/10.1007/978-3-031-34087-1

Please note: Breast milk is the ideal food for infants and WHO recommends that children be exclusively breastfed for the first 6 months www.who.int/topics/breastfeeding/en/

1. Regulatory framework for PCBs (and PCNs)

Objective: Development and implementation of a legislative frame, policy and measures for control and management of PCBs/PCNs **in closed applications** (transformers, capacitors and other equipment, oils and wastes) and open application.

Recommended activity options are:

- **Assessment of the regulatory frame** (& performance) in removing and eliminating PCB/PCN in use and out of use and strengthening the current legislative package where needed.
- Establishing penalties/fines for **a)** improper management of PCB/PCN-containing equipment; **b)** for late or non-submission of progress reports to authorities on amount of PCB-containing equipment that is still in use, amounts of out-of-used equipment and equipment disposed.
- Defining a National PCB/PCN Elimination Plan (stop use in 2025; final disposal 2028), best included in the National Hazardous Waste Management Plan, defining tasks for institutions and companies for the management and disposal of PCB/PCN-containing wastes (**time line**).

Conference of the Parties to the Stockholm Convention on Persistent Organic Pollutants
Eleventh meeting
Geneva, 1–12 May 2023
Item 5 (a) (iii) of the provisional agenda*

Matters related to the implementation of the Convention: measures to reduce or eliminate releases from intentional production and use: polychlorinated biphenyls

UNEP/POPS/COP.11/INF/13

Stockholm Convention on Persistent Organic Pollutants

Draft strategy for Parties to meet the 2025 and 2028 goals of the Stockholm Convention

1. Regulatory framework for PCBs and PCNs

Objective: Development and implementations of legislative frame, policy and measures for control and management of PCBs/PCNs in closed and open applications (equipment, materials and wastes).

Recommended activity options:

- Restriction of import of PCBs including PCB-containing equipment and waste, exempt for the environmentally sound disposal in an accredited facility in accordance with the Basel procedure.
- Strengthening control and inspection of locations where PCB/PCN-containing equipment are still in use, as well as of (interim) storage sites and sites where disposal facilities are operating.
- Setting up requirements for environmentally sound interim storage and/or disposal facilities of PCB/PCN-containing equipment/wastes.

1. Regulatory framework for PCBs (and PCNs)

Objective: Development and implementations of legislative frame, policy and measures for control and management of PCBs (and PCNs) **in closed applications** (transformers, capacitors and other equipment, oils and wastes), open application **and in products**.

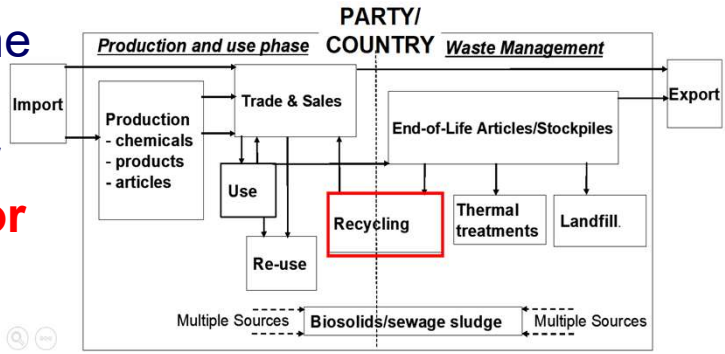
Recommended activity options are:

- **Set unintentional trace contaminant (UTC) limits for unintentional PCBs in chemicals, mixtures and products and set UTC limits for reuse and recycling.**

Background: PCBs are unintentionally formed in some chemical processes and are contaminants in products such as certain pigments and dyes or silicone products.

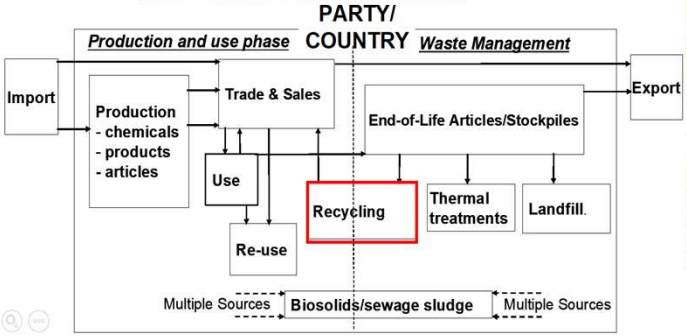
In addition, **some material flows containing PCBs are recycled** and the **low POP content of 50 mg/kg** is **too high for these recycling flows** and could **contaminate food**, the environment or **recycling cycles**. Therefore e.g. Germany **set** some **UTC limits** for important recycling flows:

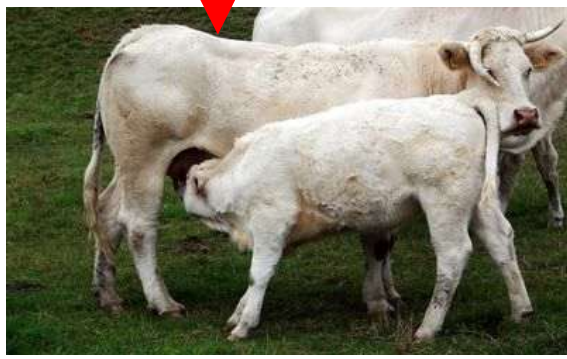
- **Wood and wood recycling is** impacted by PCB used as flame retardant in paints (e.g. on "Wilhelmi plates" in construction). **Recycling can contaminate new furniture and bedding for animals** and 50 mg/kg is too high **(German recycling limit for waste wood: 5 mg/kg ΣPCB).**



PCB open applications contaminating C&D waste recycling

- **PCB-sealants & paints can contaminate CDW** if not removed.
- PCBs can contaminate the surrounding when shredding PCB containing CDW or when sand blasting PCB paints.
- When **PCB containing CDW was reused on farms** for landscaping **cattle were exposed to PCB & meat contaminated above limit**.
- **UTC limits were set for recycled material from construction in Germany to 0.15 and 0.5 mg/kg for PCBs (dependent on use).**





See: Weber et al (2018) ESPR. 25, 16325-16343.

1. Regulatory framework for PCBs (and PCNs)

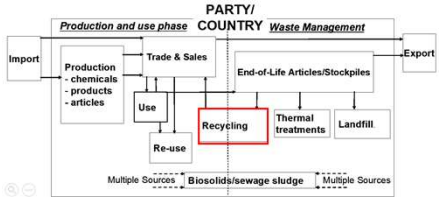
Objective: Development & implementations of legislative frame. Recommended activities are:

- **Setting unintentional trace contaminant (UTC) limits for chemicals, mixtures and products and set low POPs limits for reuse and recycling.**

The European POP Directive develops/includes for **all POPs UTC limits and LPCL. Proposed UTC limits for PCB are in a draft legislation which will enter into force likely in 2027:**

- To protect human health and the environment, ….., **a UTC limit value of 0.2 mg/kg should be set for the sum of PCB in substances, mixtures and articles.**
- Considering that **PCB are unintentionally present in pigments/dyes >0.2 mg/kg** and taking into account the technical limitations to remove PCB from organic pigments and dyes, a **specific UTC limit of PCB in mixtures and articles containing organic pigments or dyes of 25 mg/kg upon entry into force of this Regulation and 10 mg/kg 3 years later**.
- **PCB are unintentionally produced in manufacturing of silicone** when using a specific cross-linking initiator. **A specific UTC limit value for PCB in silicone compounds or mixtures or articles of 50 mg/kg upon entry into force of the Regulation**, **25 mg/kg 3 years after entry into force and 0.2 mg/kg 6 years after entry into force** of the Regulation.
- **A UTCL should be set for PCB** in **heavy fuel oils and re-refined oil products of 2.5 mg/kg.**

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=intcom:Ares%282025%291300377



1. Regulatory framework for PCBs – Option of EPR and PPP

- **Bayer (DE) & Monsanto** (US&UK) **produced together 65% of all PCBs**. Orgsteclo, Prodelec, and Kaneka Corporation produced 25% of PCBs and therefore all together 90% of all PCBs.
- Considering the extended producer responsibility (EPR) and polluter pays principle (PPP), these companies could or rather should contribute to the global management of PCBs.
- In the US, Bayer (which acquired Monsanto in 2016) pays in the billion USD scale for PCB contamination especially of schools/buildings and related exposure.

Producer	Country	Start	Stop	Amount	%
Monsanto	USA	1930	1977	641,246	48.4
Bayer AG	West Germany	1930	1983	159,062	12.0
Orgsteklo	U.S.S.R. (Russia)	1939	1990	141,800	10.7
Prodelec	France	1930	1984	134,654	10.2
Monsanto	U.K.	1954	1977	66,542	5.0
Kanegafuchi	Japan	1954	1972	56,326	4.2
Orgsintez	U.S.S.R. (Russia)	1972	1993	32,000	2.4
Caffaro	Italy	1958	1983	31,092	2.3
S.A. Cros	Spain	1955	1984	29,012	2.2
Chemko	Czechoslovakia	1959	1984	21,482	1.6
Xi'an	China	1960	1979	8,000	0.6
Mitsubishi	Japan	1969	1972	2,461	0.2
Electrochemical Company	Poland	1966	1970	1,000	<0.1
					<0.1
Geneva Industries	USA	1971	1973	454	<0.1
Total	Global	1930	1993	1,325,810	100

Breivik, K., et al.. 2007 Science of the Total Environment,. 377, 296-307

2. Development/update of the inventory for PCBs/PCNs

Main Objective: Development/update of a robust PCB/PCN inventory - closed applications

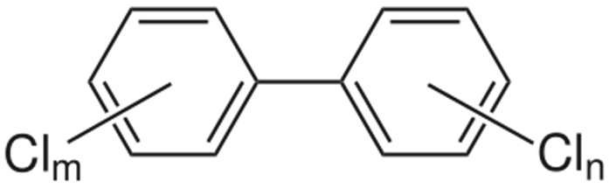
Background: In many low-/middle-income countries, still not all PCB equipment have been inventoried. In these countries the **development of a robust inventory has high priority for being considered for the next phase of GEF/World Bank projects.**

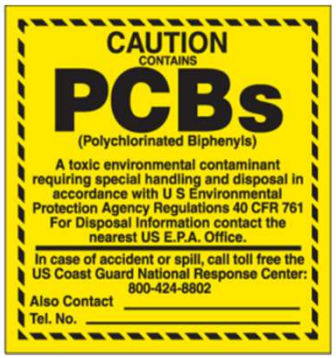
Recommended activity options:

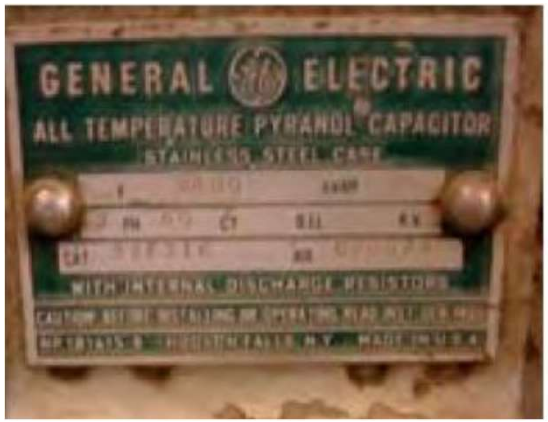
- Updating the inventory of PCB/PCN-containing closed equipment (in use and out-of-use) and PCB-containing waste oils with robust data (to become considered in GEF projects).
- Assessment of waste oil management and use and impact by PCBs (also vulnerable/gender).
- Developing and regularly updating a database for PCB/PCN-containing equipment in use and out-of-use.
- Assessment of the management of scrap from transformers and other equipment.

National database for inventory of PCB-containing transformers, capacitors and related waste oils

- It is recommended to generate **one central database** for all (relevant) transformers, capacitors and circuit breakers and update all information by marking all PCB-containing equipment.
- **Such a database is best hosted by the utility sector(s).**
- **A database should contain all information needed for PCB management (e.g.** manufacturer, serial number, **liquid weight, PCB-content (%), equipment condition, tested/which test).**
- The Ministry of Energy and Ministry of Environment **should have access to the database for national reporting (Article 15), NIP update and for an overview of the management progress towards PCB phase-out by 2025 and elimination by 2028.**







GGKP Webinar for PCB management

https://www.greenpolicyplatform.org/webinar/introduction-pcbs-and-development-comprehensive-pcb-inventories-national-implementation

2. Development/update of the inventory for PCBs

Main Objective: Development/update of a PCB inventory in open applications.

Background: In many industrial countries, PCB have been extensively used in open applications especially in sealants and paints in buildings and structures. A large share of these PCBs are still present in buildings resulting in indoor exposure and environmental releases and contamination of construction and demolition waste. **SCCP/MCCP partly substituted PCBs in the 1970s.**

Recommended activity options:

- **Assessment of the past use of PCBs/PCNs in open applications** (sealants, paints, rubber, chloroprene) in the country (**best within the assessment of short-chain and medium-chain chlorinated paraffins** (SCCPs/ MCCPs) in open applications)**.**

If relevance of PCBs/PCNs in open applications has been confirmed then:

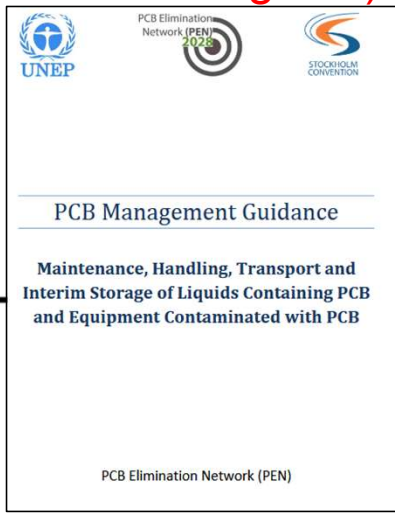
- Development of an inventory of PCBs/PCNs in open application (combined with inventory of SCCPs/MCCPs in these applications).
- Assessment of the management of CDW containing PCBs/PCNs/SCCPs/MCCPs.

3. Life cycle management of PCB/PCN-containing equipment, products, stockpiles and waste

Objective: Life cycle management (handling, transport, storage, export/disposal) of PCB/PCN-containing equipment, open applications and PCB/PCN-containing wastes.

Recommended activity options:

- Assessing the current status and the need for improvement of the management of PCB/PCN-containing equipment & other wastes (e.g. handling, transport, interim storage, disposal/export).
- Elimination of the use of PCB equipment (transformers, capacitors, etc.) **by the end of 2025 (ASAP)** and safe transport and storage (see Draft strategy for Parties to meet 2025/2028 goals).
- Establishing inspection/control on the handling, storage, transport and disposal of PCB/PCN-containing equipment and contaminated wastes.
- Training of all stakeholders (see education & training AP)
- Monitor/track and guide the phase-out of PCB equipment.



Conference of the Parties to the Stockholm Convention on Persistent Organic Pollutants
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Item 5 (a) (iii) of the provisional agenda*

Matters related to the implementation of the Convention: measures to reduce or eliminate releases from intentional production and use: polychlorinated biphenyls

Draft strategy for Parties to meet the 2025 and 2028 goals of the Stockholm Convention

Phasing out PCB & reducing carbon footprint - Integrated approach & finance

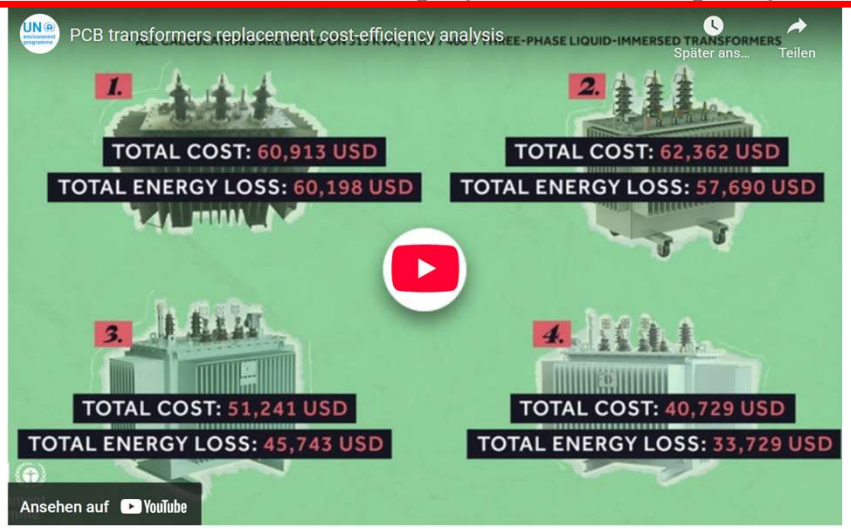
- One challenge is a sustainable financing for phase-out and management of PCBs. See BRS report.
- Phasing out the old PCBs transformers with new energy-efficient models saves energy and reduces carbon emissions. Over transformers lifetime, the safed money can be 10 times the investment.
- Considering this win-win situation, companies can more easily easier phase out old PCB equipment.

Matters related to the implementation of the Convention: financial resources and mechanisms

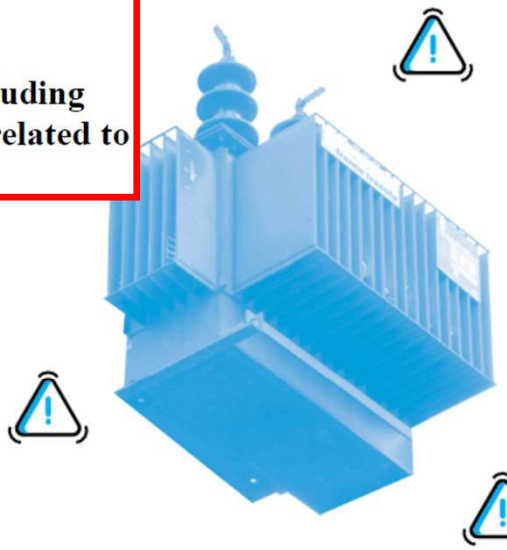
UNEP/POPS/COP.11/INF/30

Stockholm Convention on Persistent Organic Pollutants

Report on further options for addressing the needs, including funding needs, and challenges met to reach the targets related to the elimination of polychlorinated biphenyls



https://www.unep.org/toward-elimination-pcbs



Phasing out **PCB transformers** with new energy-efficient models offers numerous benefits, reducing carbon emissions, saving energy, and promoting a transition towards **a net-zero future.**

An **energy-efficient transformer** will have a higher cost, but energy loss can be reduced by 50% during running time. Over a transformer's lifetime, the saved money will be **10 times** the initial investment.

The **elimination of PCBs** and the reduction of carbon footprint are crucial steps in **combating climate change and pollution.**

UN environment programme

3. Life cycle management of PCB/PCN-containing equipment, products, stockpiles and waste

Objective: Life cycle management (handling, transport, storage, export/disposal) of PCB/PCN-containing equipment, open applications and PCB/PCN-containing wastes.

Recommended activity options:

- **Evaluate** destruction capacities in the country and the region (e.g. BAT cement kilns; NaDeCl).
- Environmentally **sound disposal**/export of PCB wastes considering guidelines for environment sound management of PCBs/PCNs equipment and wastes (Basel Technical Guideline; PEN).
- Proper training of stakeholders (see education & training Action Plan).
- Establishing **capacity and preparedness to address emergencies** related to PCBs/PCNs

Guidance

The following guidance documents provide information on all aspects related to the environmentally sound management of polychlorinated biphenyls (PCBs), including identification and inventorying of PCBs, regulatory frameworks, handling, transport, storage and disposal, development of national strategies and phaseout plans as well as advice on potential funding mechanisms for PCBs elimination.

https://chm.pops.int/Implementation/IndustrialPOPs/PCB/Guidance/tabid/665/Default.aspx

1. PCB identification and Inventory
2. PCB disposal
3. Open applications
4. National strategies and phase out plans

4. Assessment and management of PCB contaminated sites - Background

- PCB contaminated sites are a large legacy of the past nearly 100 years of PCB production and use.
- PCB are highly persistent and the generated contaminated sites have the potential to impact human health and the environment.
- **Article 6 of the Convention says (paraphrased) "that Parties shall endeavour to develop appropriate strategies to identify POPs contaminated sites; if remediation is undertaken then in an environmentally sound manner"**.
- To minimise the impacts on vulnerable population and current & future generations, it is important that PCB (& other POPs) contaminated sites are systematically identified, inventoried and assessed to evaluate the need for securing and possibly remediating sites.

Dioxin- and POP-contaminated sites—contemporary and future relevance and challenges

Overview on background, aims and scope of the series

https://doi.org/10.1007/s11356-008-0024-1

Life cycle of PCBs and contamination of the environment and of food products from animal origin

https://doi.org/10.1007/s11356-018-1811-y

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KeAi
CHINESE ROOTS GLOBAL IMPACT

Emerging Contaminants

journal homepage: www.keaipublishing.com/cn/journals/emerging-contaminants

Review article https://doi.org/10.1016/j.emcon.2022.05.001

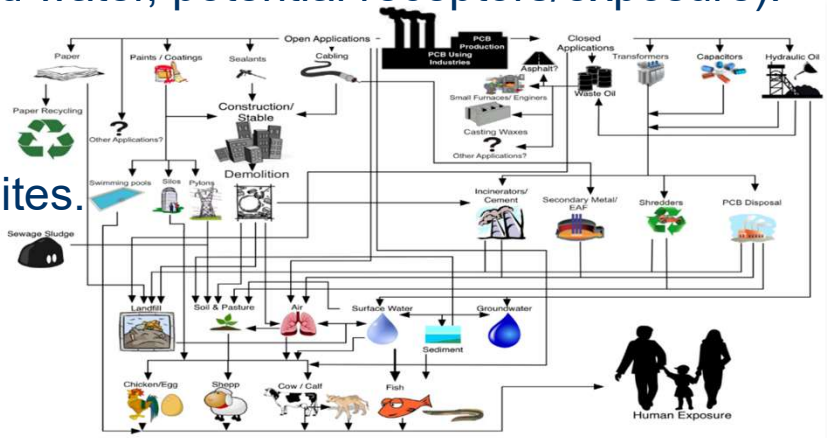
Monitoring dioxins and PCBs in eggs as sensitive indicators for environmental pollution and global contaminated sites and recommendations for reducing and controlling releases and exposure

Jindrich Petrlik [a, b], Lee Bell [a, c], Joe DiGangi [a], Serge Molly Allo'o Allo'o [d], Gilbert Kuepouo [e], Griffins Ochieng Ochola [f], Valeriya Grechko [b, g], Nikola Jelinek [b], Jitka Strakova [a, b], Martin Skalsky [h], Yuyun Ismawati Drwiega [i], Jonathan N. Hogarh [j], Eric Akortia [k], Sam Adu-Kumi [l], Akarapon Teebthaisong [m], Maria Carcamo [n], Bjorn Beeler [a], Peter Behnisch [o], Claudia Baitinger [p], Christine Herold [q], Roland Weber [q, *]

4. Assessment, management, database of PCB/PCN contaminated sites

Objective: Identification, assessment, securing and possibly remediation of PCB/PCN **contaminated sites. Recommended activity options:**

- Identification of PCB/PCN contaminated sites along life cycle (e.g. locations where PCB/PCN transformers and capacitors are/have been operating, former use of lubricants/industrial oils, maintenance areas and storage sites of PCB equipment, scrap yards, waste oil recycling etc.)
- **Establish conceptual site models** of potentially PCB contaminated sites **and develop a database**.
- Assess if **PCB transformers or oil were involved in fires** (resulting in PCDD/F contaminated sites).
- **Prioritization of the sites** for further assessment & management.
- Identify the level of contamination of priority sites (soil, ground water, potential receptors/exposure).
- **Secure and possibly remediate** PCB/PCN contaminated sites.

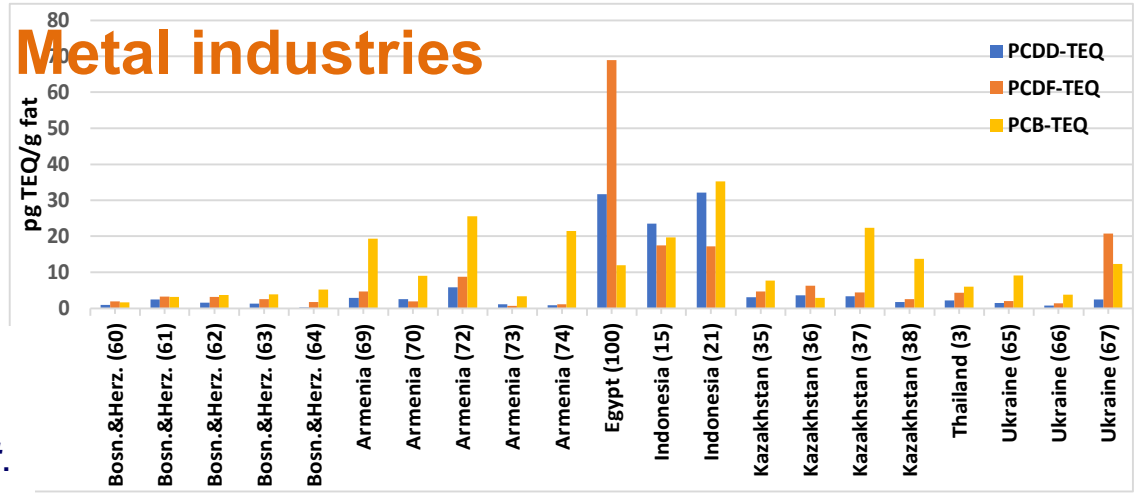


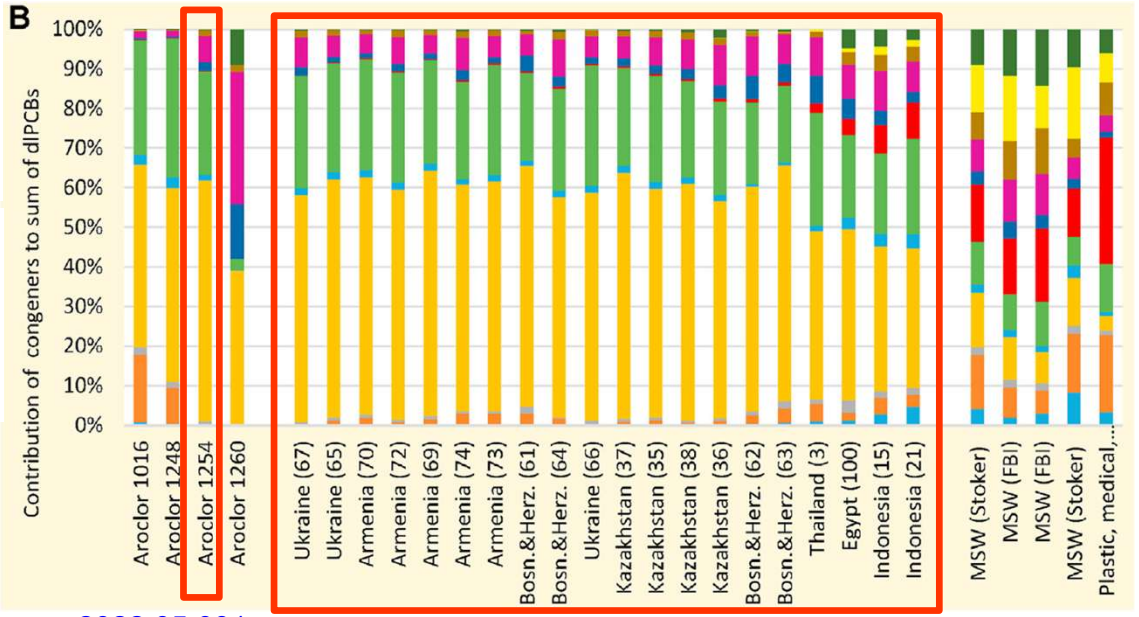
Life cycle of PCBs - contamination of soils, food and human exposure

Weber et al. (2018) Environ Sci Pollut Res Int. 25(17), 16325-16343 https://doi.org/10.1007/s11356-018-1811-y

IPEN global egg study – Metal industries

- All 21 pooled egg samples taken around metal industries (Armenia, Bosnia Herzegovina, Egypt, Kazakhstan, Thailand, Ukraine) were above EU maximum with mean conc. of 26.0 pg TEQ/g fat.
- **Commercial PCBs (mainly Arochlor 1254) were the main TEQ contributor for most metal plants** with minor unintentional PCBs from *de novo format*.
- **This demonstrate that PCBs have entered metal smelters via metal scrap over the past 40 years resulting in the pollution of surrounding soils and chicken/eggs and human exposure.**
- This highlights that the **management of metals from PCB-containing equipment needs a better control and better cleaning of metal parts before they enter e.g. copper or aluminum smelters.**



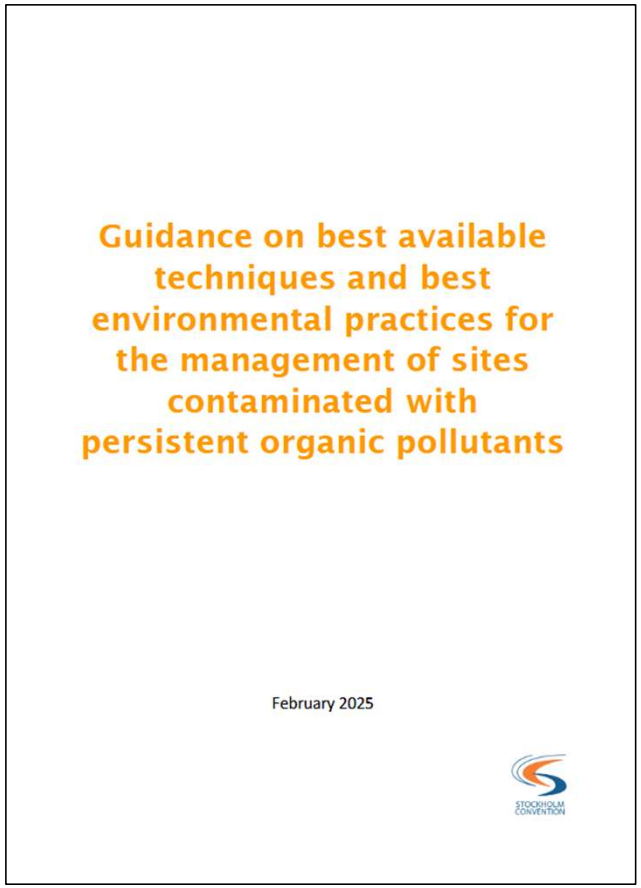


Petrlik et al. (2022) Emerging Contaminants https://doi.org/10.1016/j.emcon.2022.05.001

POP contaminated site BAT/BEP guidance (2025)

Module	Title	English
	Executive Summary and Introduction	
1	Background on POPs Contaminated Sites	
2	Principles and Approaches for POPs Contaminated Sites Management and Remediation	
3	Site Investigation, Assessment and Conceptual Site Model	
4	Environmental Risk Assessment	
5	Remediation Technologies and Techniques	
6	Technology Selection Tool for remedial options to be used in Phase 3 - the Remediation Assessment	
7	Stakeholder Engagement, Public and Worker Safety and Health	
8	Contaminated Sites Remediation and Monitoring and Aftercare	
9	Getting Started: Legislation, Policy, Inventory Development and Financing Remediation	
10	Case study - Environmental Management Plan Lâm Hoá site, Viet	

The guidance consists of nine modules, an executive summary and a first case study.

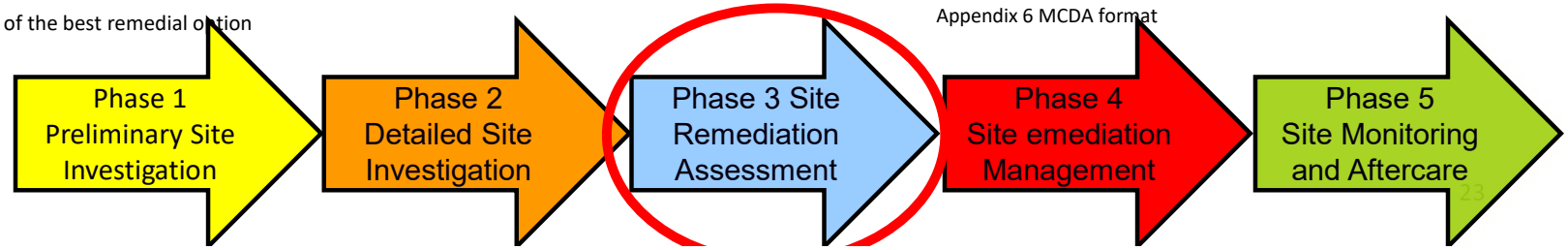


https://www.pops.int/Implementation/BATandBEP/POPscontaminatedsites/Guidance/tabid/9649/Default.aspx

Module 6 - Technology Selection Tool for remedial options to be used in Phase 3 - the Remediation Assessment

For the Phase 3 „Site Remediation Assessment“. **PCB contaminated site was selected as a practical case relevant for many countries - but with general applicability for other POP.**

Table of content



5. Analysis and monitoring of PCBs and PCNs

Objective: Established analytical and monitoring capacity for PCBs/PCNs (closed and open applications, environment, food, exposure). **Recommended activity options:**

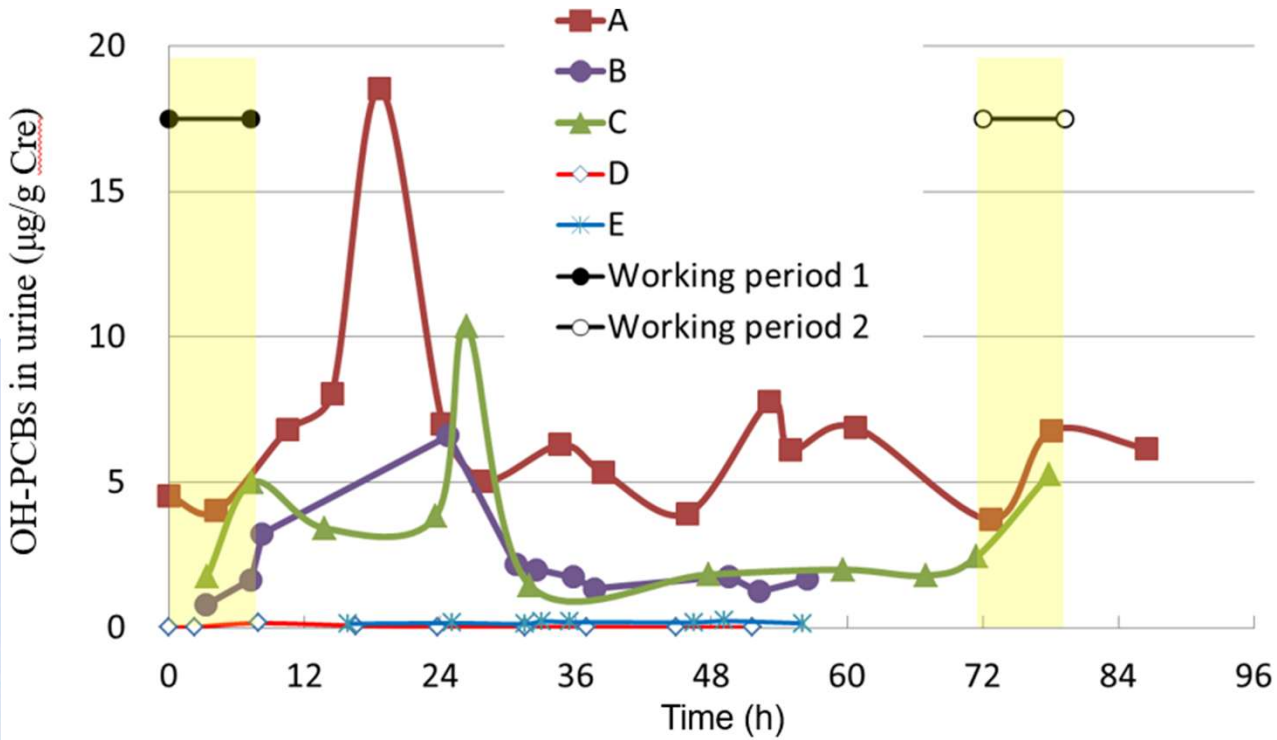
- **Assessment of options for monitoring of PCBs**/PCNs in the region, and **decision on whether to establish own analytical capacity or use regional or international capacity.**
- **Monitoring and analysis of PCBs/PCNs in equipment and waste oils for promoting phase-out and management (robust data are key for GEF).**
- **Monitoring open applications of PCBs**/PCNs (best combined with SCCP/MCCP) and other matrices to assess contaminated sites (soil, food) and products (recycled oils, pigments/dyes).
- **Assessment of PCDD/F pollution where a fire of PCB equipment occurred.**
- **Monitoring of occupational exposure (PCB management, maintenance, remediation)** and **vulnerable groups.**

5. Analysis and monitoring of PCBs and PCNs

Objective: Established analytical and monitoring capacity for PCBs/PCNs:

Case study on monitoring of occupational exposure of staff managing PCB equipment.

- A **non-invasive method for the monitoring of PCB exposure has been developed in Japan** for screening exposure of workers managing PCB equipment by analyzing OH-PCBs in urine.
- By this approach, the PCB exposure of workers can be detected and followed even for individual shifts.
- Workers with elevated exposure can be informed on the exposure and the need of a better use of personal protective equipment.



Haga et al. (2018) ESPR, 25(17), 16446-16454. https://doi.org/10.1007/s11356-018-1927-0

6. Education and awareness raising for relevant stakeholder groups on PCBs and PCNs

Objective: Education and awareness of stakeholders (policy makers; workers, industries, customs, NGOs and the public) on PCBs/PCNs in closed and open applications.

Recommendation activity options:

- **Education of policy makers on health hazards** of PCBs and the related risk for humans, the environment and for food security and related need for management.
- **Education of utility sector**, maintenance and remediation workers, and industry owing PCB/PCN equipment and PCB-containing wastes.
- **Strengthen the inspection capacity for PCBs for customs.**
- **Strengthen the inspection capacity for other competent authority** (market survey, consumer protection, waste management, disposal).
- Awareness and knowledge on **emergencies and disasters related to PCBs/PCNs** (fires, spillage, poisoning, food contamination).
- **Education of citizens, vulnerable groups and NGOs** on PCBs/PCNs (and SCCPs/MCCPs) including open applications relevant for consumers (paints and sealants) **within broader awareness on POPs and other chemicals of concern.**

7. Assessment of alternatives to PCBs and PCNs

Objective: Assessment and promotion of sustainable alternatives used for PCBs/PCNs in closed and open applications.

Recommended activity options:

- Compilation of information on alternatives in former closed and open applications of PCB/PCN and assessment of alternatives used.
- Education on alternatives of PCBs/PCNs in closed and open applications
- **Promotion of the most sustainable alternatives in closed applications considering chemical aspects but also energy aspects (energy efficient transformers)**
- Promotion of green/sustainable alternatives in open applications of PCBs/PCNs (not CPs!).
- Promotion of alternatives to the chemicals containing unintentional PCBs (pigments, silicones).

https://www.chemforward.org/ipcb-pigment-resource

https://www.unep.org/toward-elimination-pcbs

Thank you for your attention ! Questions?

More Information https://chm.pops.int/Implementation/IndustrialPOPs/PCB/TechnicalAssistance/tabid/553/Default.aspx

Basel Convention: www.basel.int

Rotterdam Convention: www.pic.int

Stockholm Convention: http://chm.pops.int/;

Montreal Protocol/Vienna Convention: http://ozone.unep.org

GFC: https://www.chemicalsframework.org/ **FAO:** www.fao.org **WHO** www.who.int/

Climate Convention https://unfccc.int/ **Biodiversity Convention:** https://www.cbd.int/

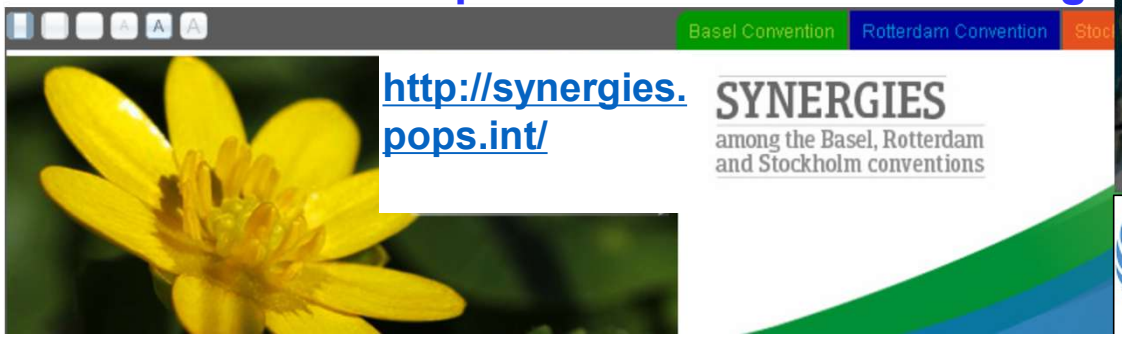
OECD/IOMC: http://www.oecd.org/chemicalsafety/

Science:; https://www.ipcc.ch/; https://www.ipbes.net/; www.unep.org/oewg-spp-chemicals-waste-pollution

Industry: http://www.suschem.org/; https://icca-chem.org/; https://cefic.org/

NGO: www.ipcp.ch; www.ipen.org; www.ciel.org/; www.ban.org; www.chemsec.org; www.wecf.org

Better-world-links: http://www.betterworldlinks.org/



UN environment programme

Global Framework on Chemicals

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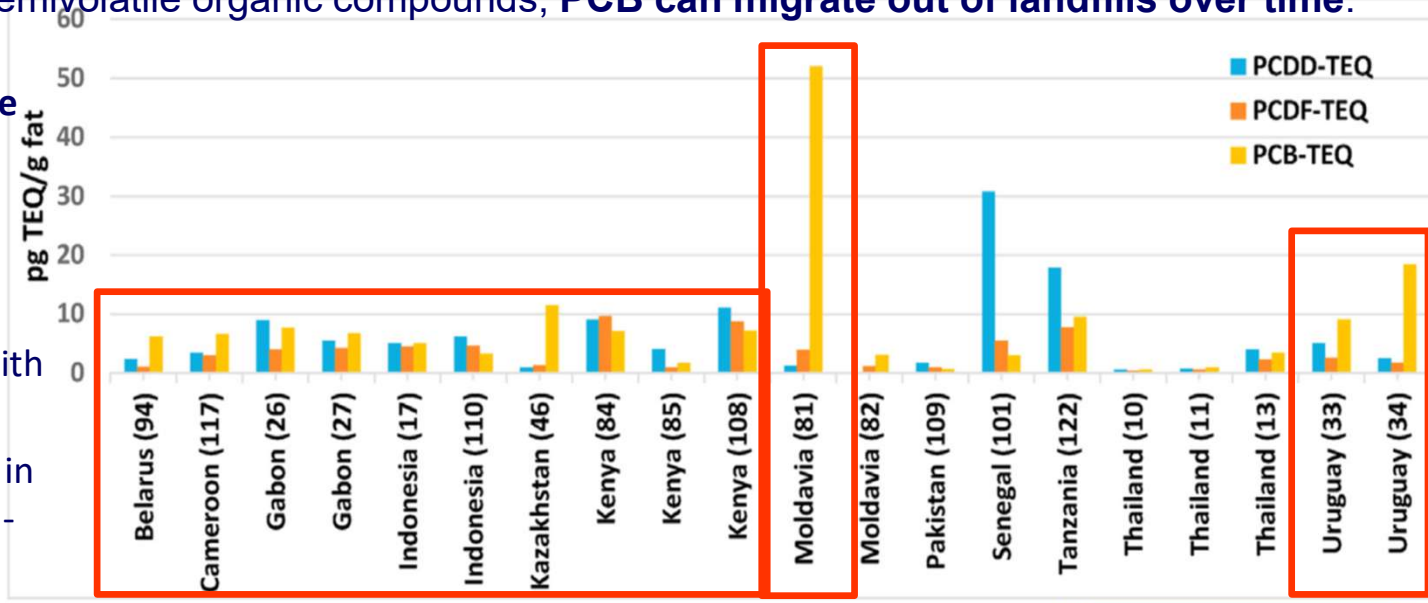
MINAMATA CONVENTION ON MERCURY

IPEN Global Egg Study – landfills & dump sites (n=20)

- From **1.3 MT PCB, more than 50%** were **not adequately managed** and were **disposed** in **landfills** and **dump sites** in the past (Breivik et al. 2007). As semivolatile organic compounds, **PCB can migrate out of landfills over time**.
- **16 of 20 pooled eggs sampled around landfills and dump sites were above the EU limit**.
- In 12 of the 20 sites PCB-TEQ alone exceeded the EU TEQ-limit for eggs.
- The highest contaminated eggs were sampled around a landfill in Moldova with 50 pg TEQ/g fat from dl-PCB.
- Also the eggs sampled around a landfill in Kazakhstan had more than 10 pg TEQ dl-PCB/g fat contamination.



- Also in landfills in Belarus, Cameroon, Gabon and Uruguay the TEQ contribution of PCBs was higher than the contribution of PCDD/PCDF.
- **The high impact of PCB contamination in eggs around landfills and dump sites highlights that landfilling of PCB results in release and contamination of the surrounding with the very persistent and semivolatile PCBs**.
- **PCBs should not be disposed to landfills and dump sites since they evaporate over time and contaminated the surroundings**. Assessment of food around landfills.

Petrlik et al. (2022) Emerg. Contam. 8, 254-279 https://doi.org/10.1016/j.emcon.2022.05.001

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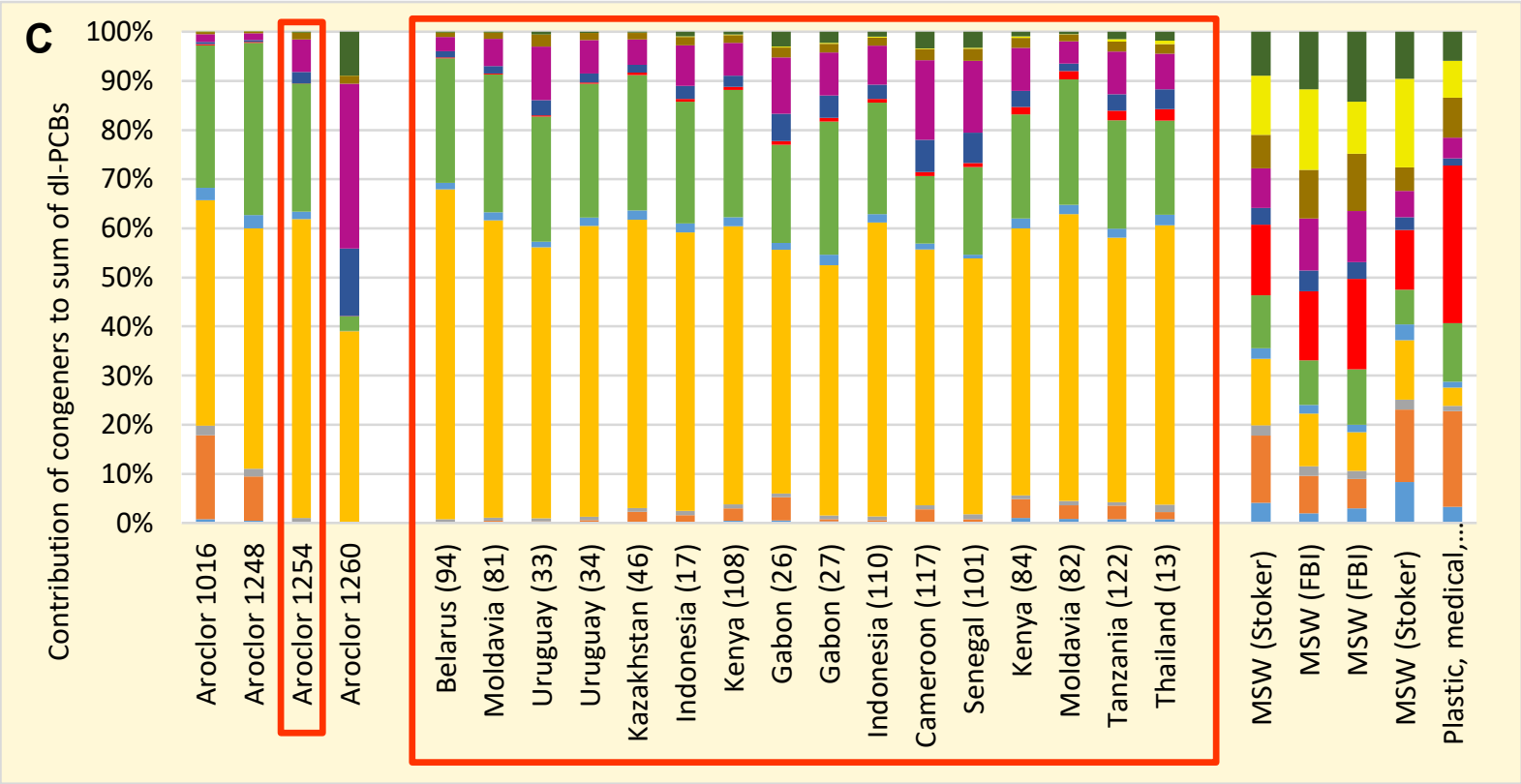

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