

Evaluating the progress in the elimination of PCB as required under the Stockholm Convention on Persistent Organic Pollutants (interim report)

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Introduction:

The Stockholm Convention on Persistent Organic Pollutants entered into force on 17 May 2004. Part II of Annex A to the Convention requires Parties to eliminate the use of polychlorinated biphenyls (PCB) in equipment by 2025 and 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 % as soon as possible but no later than 2028.

At its sixth meeting in May 2013, the Conference of the Parties to the Stockholm Convention, in its decision SC-6/6, requested the Secretariat to prepare a report on progress towards the elimination of PCB. A preliminary assessment report was prepared by the Chemicals and Waste Branch of the United Nations Environment Programme (UNEP) and submitted to the seventh meeting of the Conference of the Parties in May 2015 (UNEP/POPS/COP.7/INF/9). Subsequently, in line with decision SC-7/3, a consolidated report was developed and submitted to the eighth meeting of the Conference of the Parties in May 2017 (UNEP/POPS/COP.8/INF/10) [1].

At its eighth meeting, the Conference of the Parties encouraged Parties to step up their efforts by developing and implementing rigorous plans for the environmentally sound management of PCB throughout their life cycles, including their elimination and destruction, to meet the 2025 and 2028 goals of the Stockholm Convention. Parties were also encouraged to identify, as soon as possible, open applications such as cable sheaths, cured caulk and painted objects containing PCB and to manage them in accordance with paragraph 1 of Article 6 of the Convention.

In accordance with part II of Annex A to the Convention, the Conference of the Parties, at its ninth meeting in May 2019, will further review progress towards the elimination of PCB. For this purpose, the Conference of the Parties established a working group on PCB, and requested a lead country, Colombia, to prepare a report on progress towards the elimination of PCB on the basis of the fourth national reports to be submitted by Parties to the Convention by 31 August 2018 and other information, in consultation with the working group. The present document addresses the initial assessment conducted for preparing the report to be considered by the Conference of the Parties in May 2019.

Materials and methods:

For the initial assessment, the following sources of information were consulted:

- (a) Information available in document UNEP/POPS/COP.8/INF/10 [1] and the associated database containing quantitative information in MsExcel® format;

- (b) Information relevant to PCB extracted from the third national reports (2014), second national reports (2010) and first national reports (2006) pursuant to Article 15 of the Stockholm Convention submitted by Parties to the Stockholm Convention [2];
- (c) Information relevant to PCB extracted from the national implementation plans pursuant to Article 7 of the Stockholm Convention submitted by Parties to the Stockholm Convention [3];
- (d) Information on imports and exports of hazardous wastes and other wastes, including wastes containing above 0.005 % PCB (codes A1180, A1190 and A3180) extracted from the national reports pursuant to Article 13 of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal submitted by Parties to the Basel Convention [4];
- (e) Information obtained through a questionnaire by UNEP Chemicals and Waste Branch in 2014;
- (f) Information collected from the PEN Magazine [5] and from reports of PCB-related projects funded by the Global Environment Facility (GEF) and implemented by the United Nations Development Programme (UNDP), the United Nations Industrial Development Organization (UNIDO) and the World Bank.

With regard to quantitative data, efforts were made as much as possible to identify the total mass of all materials containing or contaminated with PCB defined as “PCB” at the national level. Such “PCB” materials are expected to be managed in accordance with the provisions of the Basel Convention and the Stockholm Convention.

Results and discussion:

As of June 2018, only 93 of 181 countries that are Parties to the Stockholm Convention (51%) had submitted the third national reports. Due to the low submission rate, the information contained therein is not sufficient to provide a global picture. For example, according to the third national reports, production of PCB was reported by only six countries to be a combined total of 30,368 tonnes, while 87 countries reported that they had never produced PCB. Furthermore, some countries known as (former) producers, such as Italy and the United States, are not Parties to the Stockholm Convention and do not provide reports under the Convention. Therefore, the total production of PCB at global level as compiled in the report by UNEP in 2017 [1] was the best estimate on global PCB production (Table 1).

Table 1: Estimate of global PCB production [1]

Country	Start of production (year)		End of production (year)		Amount of PCB produced (1,000 t)	
	Earliest estimate	Latest estimate	Earliest estimate	Latest estimate	Lowest estimate	Highest estimate
China	1960	1965	1974	1983	7	10
Czechoslovakia	1959	1959	1984	1984	21	21
Democratic People's Republic of Korea	1960s	1960s	2006	>2006	25	30
France	1930	1930	1980	1984	102	135
Italy	1958	1958	1983	1983	24	31
Japan	1952	1954	1972	1972	59	59
Poland	1966	1966	1977	1977	2	2

Country	Start of production (year)		End of production (year)		Amount of PCB produced (1,000 t)	
	Earliest estimate	Latest estimate	Earliest estimate	Latest estimate	Lowest estimate	Highest estimate
Soviet Union/ Russian Federation	1938	1939	1993	1993	180	180
Spain	1930	1955	1984	1986	25	29
United Kingdom	1951	1954	1965	1977	66	67
United States of America	1929	1930	1975	1977	476	700
West Germany	1930	1950	1983	1983	59	300
Total					1,046	1,512

A total of 87 countries reported destruction of PCB in the third national reports specifying destruction types as to locally destroyed, imported for destruction or exported for destruction. A total of more than 5 million tonnes of PCB were reported as destroyed (Table 2); however, the numbers need to be verified since the total amount destroyed was assumed to be far too high compared to the amount of PCB produced and driven by a limited number of countries. It should be noted that the numbers cannot be summed-up since double-reporting is inherent; *i.e.* export should match import.

Table 1: Destruction of PCB according to the third national reports [2]

Destruction type	Number of countries	PCB (t)
Total, locally destroyed	33	126,854
Total import for destruction	11	13,589
Total, export for destruction	43	5,025,808
Total amount of PCB destroyed	87	5,166,251

A total of 44 countries reported that they had locally destroyed several tonnes of PCB; however, not all countries provided quantitative data. Local destruction capacity for PCB was located primarily in the Western Europe and Others Group (WEOG) countries. Sixty countries reported that they had not locally destroyed PCB, while 11 countries reported that they had imported PCB for destruction (Table 3).

Table 3: Information on PCB locally destroyed or imported for destruction by the United Nations regions [2]

Region	Locally destroyed		Imported for destruction	
	Num. of countries	PCB (t)	Num. of countries	PCB (t)
Africa	2	1,033	1	30
Asia	6	6,160	-	-
Central and Eastern Europe	8	7,274	2	2,305
Latin America and the Caribbean	4	19,111	-	-
Western Europe and Others Group	13	93,276	8	11,254
Total	33	126,854	11	13,589

The preliminary assessment towards elimination of PCB [1] estimated that as of 2015, ca. 3 million tonnes of PCB (mostly transformers and capacitors) have been eliminated by Parties to the Convention. However, based on expert judgment, the actual amounts eliminated should be much higher since quantitative data was not available in many countries. According to the available data, ca. 70 % of the total mass of PCB had been eliminated since 2004, *i.e.* entry into force of the Stockholm Convention. The largest mass was reportedly eliminated in 2011. The available data indicated that GEF-funded projects accounted for the elimination of at least 23,000 tonnes of PCB.

The following recommendations related to the availability, consistency, and accuracy of quantitative information have been identified in preparing the report on progress in the elimination of PCB:

- (a) Many Parties provided quantitative information in their national implementation plans but not in their national reports. Some information provided by Parties was not consistent among different reports. Parties should keep track of the information that they have submitted to the conventions and ensure that they report harmonized and aggregated information;
- (b) Potential errors in the national reports should be brought to the attention of the Parties for correction;
- (c) One quantitative set of information per country should be generated to avoid double counting;
- (d) Quantitative information should also be collected from non-Parties;
- (e) Information characterizing the status of PCB management (e.g. inventory of PCB in use, amount of PCB removed from use or destroyed) is dynamic and changes over time. The reports by Parties should reflect the “total mass of PCB” with reference to the reporting year;
- (f) It should be noted that the progress towards the elimination of PCB excludes the consideration of unintentionally released POPs and PCB as unintentional trace contaminant.

The working group will further elaborate on the report based on the information obtained from the fourth national reports, providing the assessment of achievements and challenges in meeting the 2025/2028 goals at the national and regional levels and recommendations on priority actions. The report and the recommendations will be considered at the ninth meeting of the Conference of the Parties to the Stockholm Convention in May 2019.

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References:

1. UNEP, Consolidated assessment of efforts made toward the elimination of polychlorinated biphenyls, 2017 (UNEP/POPS/COP.8/INF/10): <http://chm.pops.int/tabid/5309/Default.aspx>.
2. UNEP, National reporting under Article 15 of the Stockholm Convention on Persistent Organic Pollutants: <http://chm.pops.int/tabid/3668/Default.aspx>.
3. UNEP, National implementation plans under Article 7 of the Stockholm Convention on Persistent Organic Pollutants: <http://chm.pops.int/tabid/253/Default.aspx>.
4. UNEP, National reporting under Article 13 of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal: <http://basel.int/tabid/4250/Default.aspx>.
5. UNEP, Inventories of PCBs - The place to start! PEN Magazine, ed. UNEP. Vol. 1. 2010; available from: <http://chm.pops.int/tabid/738/Default.aspx>.