

REVIEW OF PROGRESS IN PCB ELIMINATION UNDER THE STOCKHOLM CONVENTION ON POPS – STATUS REPORT 2019

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Introduction

Polychlorinated biphenyls (PCB) are listed in Annex A to the Stockholm Convention on Persistent Organic Pollutants (POPs) with a specific exemption for the continued use of PCB in articles until 2025 with a view of elimination and achieve environmentally sound waste management as soon as possible but not later than 2028 [1]. The production of PCB and new uses are prohibited, and equipment containing PCB shall not be exported or imported except for the purpose of environmentally sound waste management governed by the regulations under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal [2]. According to Part II of Annex A, each Party shall take action towards the elimination of PCB in equipment containing PCB greater than 0.005% (50 mg/kg) and volumes greater than 0.05 L. With regard to open applications of PCB, there is no obligation to Parties, rather each Party shall endeavour to identify other articles containing more than 0.005% in cable-sheaths, cured caulk or painted objects and manage them in an environmentally sound manner [1]. Although Part II of Annex A to the Stockholm Convention stipulates progress reports every four years, so far no quantitative information has been generated for consideration of the Conference of the Parties (COP). With the mandate from the eighth meeting of the conference of the Parties in 2017, a small intersessional working group was tasked to prepare a report on the progress towards the elimination of PCB (decision SC-8/3). Here we report the main findings of the quantitative information.

Materials and methods

A small intersessional working group (SIWG) consisting of twelve government-nominated members and twelve other members worked through electronic means and one physical meeting in Prague, Czech Republic, to collect and assess the information and prepare the report.

Sources of information included:

1. Stockholm Convention national reports pursuant to Article 15: Third and fourth reports [3]; hereafter referred to as NR3 or NR4, resp.;
2. Quantitative questionnaire prepared in MsExcel[®] and distributed to the Stockholm Convention Parties; hereafter referred to as Quest2018;
3. Online survey with targeted questions, distributed to the Stockholm Convention Parties; hereafter referred to as Survey2018;
4. Basel Convention national reports on export/import of PCB for destruction pursuant to Article 13[4]; hereafter referred to as Basel.

Initial information was followed up for clarification with Parties where necessary; expert judgment was applied where obvious inconsistencies existed; especially with respect to units to be reported (kg vs. ton).

The national definition of 'PCB' and the associated amounts have been used.

The quantitative information was maintained in MsExcel[®] format and assessed with the statistic tools provided in the software.

Results and discussion

1. Sources of information:

Reporting under Article 15 of the Stockholm Convention is an obligation for Parties to be undertaken every four years. The results were disappointing since by the deadline of 31 August 2018, only 59 of 182 Parties had submitted for their fourth national reporting cycle (NR4). In order to gather more data, all information submitted to the Stockholm Convention Secretariat by 31 December 2018 was accepted and in addition, 93 reports from the third reporting cycle (NR3) were included to improve the database. The quantitative questionnaire (Quest2018) was responded by only 37 of 182 Parties; 52 of 182 Parties responded to the Survey2018 by the deadline of 30 September 2018. The most comprehensive source of information were the national reports pursuant to Article 13 of the Basel Convention on export/import of PCB for destruction, which were available for the years from 2001 until 2016; using Y10 code for identification of PCB waste.

Difficulties encountered in the analysis of the information included the following: (i) Whereas the majority of countries applied the limit of 50 mg/kg (0.005%) as stipulated in the Basel and Stockholm conventions for the definition of PCB waste, some countries took lower limits, e.g. 0.002%. (ii) although the Stockholm Convention national reporting format states ‘equipment, liquids, or other wastes containing greater than 0.005% (50 ppm) PCB’, some countries did not include the equipment from large transformers into the mass of ‘PCB destroyed’ but rather quantified and reported only the PCB-containing oil as PCB waste. The reason for such consideration is that the carcass can be decontaminated, reused or recycled and is not destroyed as PCB in the oil. (iii) Some countries have reported PCB present in open applications in their inventories, although these are not formally addressed as an obligation in Part II of Annex A to the Stockholm Convention. (iv) Not all Parties could be consulted to clarify or correct obvious errors, so that some adjustments were made where major inconsistencies occurred; in most cases, quantities of PCB appeared to be too high, thus it was assumed that the wrong unit was used (kg instead of ton). (v) Finally, national activities of non-Parties as the United States of America and Italy are not reported under the Convention’s mechanism and are not included in the quantitative information shown below. The Basel reporting includes the data from Italy as it is a Party to the Basel Convention. Because of (i) to (v) above, the data reported by Parties are not complete and not comparable.

2. Quantitative results:

Information on PCB amounts that were destroyed within national boundaries could be retrieved from three sources, *i.e.* the national reports under the Stockholm Convention (NR3 and NR4) as well as from the questionnaire sent by the Secretariat (Quest2018). Table 1 shows the amounts of PCB that were reported to have been locally destroyed according to UN region. It can be seen that the three different sources of information gave very different results: the highest amount was found in the questionnaire (Quest2018) driven by the reporting of one Party in Asia (Japan) that manages all PCB within its national boundaries; thus, does neither import nor export PCB for destruction. The national reports (NR3, NR4) showed large differences between reporting cycles (except Africa).

Table 1: Amounts of PCB locally destroyed

UN region	NR3 Total (t)	NR4 Total (t)	Quest2018 Total (t)
Africa	1,033	1,080	
Asia-Pacific	6,160	102,437	748,090
Central and Eastern Europe	7,274	6,914	5,312
Latin America and the Caribbean	21,008	47,207	40,439
Western Europe and others	93,283	22,055	132,421
Grand total	128,757	179,693	926,263

Table 2 summarizes and compares the information extracted from question 17 of the national reports (NR3 and NR4), question 2 ‘Amount of PCB exported to foreign country for destruction of the Questionnaire (Quest2018) and the Basel Convention national reports using the Y10 code. It shall be noted that the statistics from the Basel Convention covers the years 2001-2016; thus, a longer period than usually reported in the national reports (4 years). In addition, from detailed information by country as shown in the full report [5], it can also be seen that several countries report PCB export (and management) only under the Basel Convention and not under the Stockholm Convention. From the information provided under the Stockholm Convention (NR3, NR4, Quest2018), the quantity of PCB exported for destruction only accounts for 10% of the reported quantity as exported for destruction by Africa or Asia. Therefore, it is assumed that the NR4 reporting is not yet complete.

Table 2: Amounts of PCB exported for destruction

UN region	NR3 Total (t)	NR4 Total (t)	Quest2018 Total (t)	Basel Total (t)
Africa	1,055	1,266	2,231	28,037
Asia-Pacific	1,038	1,491	1,534	42,764
Central and Eastern Europe	10,378	4,228	8,184	31,308
Latin America and the Caribbean	17,208	10,936	12,154	22,789
Western Europe and others	25,053	17,392	13,138	367,343
Grand Total	54,731	35,312	37,240	492,240

Only a few countries reported import of PCB for destruction and the largest amounts were imported into certain EU countries (Table 3). Whereas the numbers are generally consistent between NR3 and NR4, but the quantities reported in Quest2018 and the Basel reporting revealed very different numbers.

Table 3: Amounts of PCB imported for destruction

UN region	NR3 Total (t)	NR4 Total (t)	Quest2018 Total (t)	Basel Total (t)
Africa	30.0	30.0		75.0
Asia-Pacific				4,547
Central and Eastern Europe	2,305	16.7	2,595	5,768
Latin America and the Caribbean	-	-	-	-
Western Europe and others	11,672	16,367	37,693	240,318
Grand Total	14,008	16,414	40,287	250,708

The quantities of PCB in storage or in use as summarized in Table 4 are highly uncertain, because they suffer from the fact that only a small number of countries have reported in any of the three formats (NR3, NR4, Quest2018 or Survey2018), resulting in unknown quantities not accounted for. On the other hand, the total amounts may be overestimated since Parties included non-classified equipment and liquids (*i.e.* PCB concentrations > 50 mg/kg yet to be confirmed) or have extrapolated unknown contamination based on previous percentage of positively identified equipment/liquids to not yet classified equipments. Further, some countries include open applications in the inventory.

Table 4: Amounts of PCB inventoried at present

Region	NR reporting inventory		in use (t)	Quest2018		Survey 3.1 inventory (t)
	NR3 (t)	NR4 (t)		Stored (t)	Subtotal (t)	
Africa	14,894	14,956	4,220	2,095	6,315	1,259
Asia-Pacific	64,844	98,519	788	14,318	15,106	17,229
Central and Eastern Europe	47,396	19,094	4,716	22,941	27,658	15,101
Latin America and the Caribbean	164,677	129,535	153,048	45,189	198,237	21,355
Western Europe and others	8,683	18,182	51,579	63.4	51,642	70,002
Grand Total	300,495	280,287	214,352	84,606	298,958	124,945

Tables 5 and 6 summarize the information retrieved from the annual reporting under the Basel Convention; a longer period is covered and the information is related to one-year periods. Since information is available since 2001, the data reported were split into amounts handled before entry into force of the Stockholm Convention, *i.e.* **before 2004** and after the entry into force, *i.e.* **after 2004**. It can be seen from Tables 5 and 6 that substantive activities on PCB destruction were accomplished before the entry-into-force of the Stockholm Convention.

Table 5: Basel reporting: PCB export for destruction

UN region	Before 2004 (t)	After 2004 (t)	Total (t)
Africa	8,825	19,212	28,037
Asia-Pacific	1,536	41,228	42,764
Central and Eastern Europe	10,076	21,232	31,308
Latin America and the Caribbean	9,003	13,786	22,789
Western Europe and others	77,585	289,758	367,343
Grand Total	107,024	385,216	492,240

Table 6: Basel reporting: PCB import for destruction

UN region	Before 2004 (t)	After 2004 (t)	Total (t)
Africa	0	75	75
Asia-Pacific	690	3,857	4,547
Central and Eastern Europe	39	5,729	5,768
Latin America and the Caribbean	-	-	-
Western Europe and others	42,655	197,663	240,318
Grand total	43,384	207,325	250,708

The summary of the quantitative analysis as reported by Parties to the Stockholm and Basel conventions related to the amounts of PCB nationally destroyed, imported or exported for destruction together with the amounts still present (*i.e.* in storage awaiting destruction or in use) is shown in Table 7.

The quantitative information presented here and in document UNEP/POPS/COP.9/INF/10 [5] supersedes earlier reports presented to the Conference of the Parties by UNEP Chemicals [6]. It shall be noted that obvious errors in the national reports (NR3) were identified, where a few Parties provided amounts in kg rather than tons in the

section on PCB exported (Table 2) resulting in very different quantities from those reported earlier. For example, the draft progress report assessing the national reports in March 2018, reported an export of 4,282,900 tons from the Latin American and Caribbean region; the corrected number accounts for 17,208 tons.

Table 7: Summary of the quantitative analysis

	NR3 (t)	NR4 (t)	Quest2018 (t)	Survey (t)	Basel (t)
Locally destroyed	128,757	179,693	926,263		
Exported	54,731	35,312	37,240		492,240
Imported	14,008	16,414	40,287		250,708
Inventory (Stored+in use)	300,495	280,287	298,958	124,945	

3. Conclusions and Recommendations:

Reporting pursuant to Article 15 is an obligations for all Parties to the Stockholm Convention. In order to have a reliable review of the progress towards the elimination of PCB, as decided by the Conference of the Parties in its decision SC-9/3 at the ninth meeting, all Parties are urged to report every four years, complete and accurately the quantities of PCB: (a) in use, (b) in storage awaiting destruction, (c) exported for destruction, (d) imported for destruction, and (e) destroyed locally. Further, despite there are many guidelines to prepare PCB inventories, there is an urgent need to prepare a handy manual for the management of the inventories, with clear instructions on the analytical approach about how to quantify PCB in inventories, but also how to gather, analyze and report amounts of PCB stored, exported, imported or destroyed.

With a view of technical details, the PCB inventory should differentiate between 'PCB in storage' (already defined and classified, awaiting destruction) and 'PCB in use'. In addition, the category 'PCB in use' should be better defined as to the mass of PCB (including equipment). Quantities should be reported in 'tons' throughout all forms/templates.

The Basel Convention reporting information was found very useful for evaluating the progress towards PCB elimination and Parties are encouraged to use code 'Y10' for PCB waste.

For the preparation of the national reports, the use of the online questionnaire (Survey2018) and the tabular questionnaire (Quest2018) were found useful for carrying out periodic reviews; however, it should be noted that such surveys are voluntary and not part of reporting obligations. The ninth meeting of the Conference of the Parties (COP-9) re-established the Small Intersessional Working Group to continue the work and requested the Secretariat to prepare the next report on progress towards the elimination of PCB for consideration at COP-11 in 2023 [7]. The report will critical in view of the 2025/2028 goals on PCB elimination of the Stockholm Convention.

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