



Stockholm Convention on Persistent Organic Pollutants

**Conference of the Parties to the Stockholm
Convention on Persistent Organic Pollutants
Ninth meeting**

Geneva, 29 April–10 May 2019

Item 5 (b) of the provisional agenda*

**Matters related to the implementation of the
Convention: measures to reduce or eliminate
releases from unintentional production**

Reports of the expert meetings on the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional Persistent Organic Pollutants and on best available techniques and best environmental practices

Note by the Secretariat

As is mentioned in the note by the Secretariat on the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and other Unintentional Persistent Organic Pollutants and guidelines and guidance on best available techniques and best environmental practices (UNEP/POPS/COP.9/9), the reports of the expert meetings on Best Available Techniques and Best Environmental Practices and on the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional Persistent Organic Pollutants, held in Vienna, Austria, from 3 to 5 October 2017 and in Bratislava, Slovakia, from 9 to 11 October 2018, are set out in the annexes I and II to the present note, respectively. The present note, including its annexes, has not been formally edited.

* UNEP/POPS/COP.9/1.

Annex I

Report of the Expert Meeting on Best Available Techniques and Best Environmental Practices and Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional Persistent Organic Pollutants under the Stockholm Convention, Vienna, Austria, 3-5 October 2017

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I. Opening of the meeting

1.1 Welcome and introduction of participants

1. The expert meeting on Best Available Techniques (BAT) and Best Environmental Practices (BEP) and the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional Persistent Organic Pollutants under the Stockholm Convention (Toolkit) was organized by the Secretariat of the Basel, Rotterdam and Stockholm Conventions in collaboration with the Federal Ministry of Agriculture, Forestry, Environment and Water Management of Austria and the Basel Convention Regional Centre for Training and Technology Transfer for Central Europe in Slovakia. The meeting was held from 3 to 5 October 2017 and was hosted by the Federal Ministry of Agriculture, Forestry, Environment and Water Management of Austria.

2. The meeting was opened by Ms. Katarina Magulova, Programme Officer, Secretariat of the Basel, Rotterdam and Stockholm Conventions. In her opening remarks, Ms. Magulova highlighted the important contribution provided by the Toolkit and BAT and BEP experts since the early stages of the process for the ongoing review and update, with many important outcomes to date. Further welcoming remarks were given by Ms. Susanna Eberhartinger-Tafill on behalf of the Federal Ministry of Agriculture, Forestry, Environment and Water Management of Austria.

3. The participants introduced themselves by stating their names, affiliation and area of expertise. The list of participants is attached to this report as Annex I.

1.2 Adoption of the agenda

4. The meeting agenda was adopted without changes (Annex II).

1.3 Objectives of the meeting

5. The aim of the meeting was to kick-off the activities included in the workplan for the review and update of the Toolkit and of the guidelines and guidance on BAT and BEP adopted at COP-8 (decision SC-8/6), in particular to initiate the work relevant to the inclusion of the newly listed POPs in the relevant guidance documents. The main outcomes of the meeting were agreed proposals for updating existing guidance and/or developing additional guidance for each area of work according to the workplan, including the following elements:

- (a) Evaluation of available information;
- (b) Identification of additional information sources;
- (c) Considerations for integration of the information into existing guidance documents or development of new guidance;
- (d) Identification of contributors, milestones and timelines for the 2017-2018 intersessional period.

1.4 Organizational matters

6. The meeting was held according to the programme set out in Annex II to this report. Working group sessions were organized to facilitate the further development of the proposals for intersessional work referred to in paragraph 5 above.

II. Introduction and context

2.1 Outcomes of COP-8 relevant to the Toolkit and BAT and BEP

7. At its eighth meeting held in 2017, the Conference of the Parties to the Stockholm Convention adopted the terms of reference and the workplan for the review and update of the Toolkit and of the guidelines and guidance on BAT and BEP. The need to update existing guidance and/or develop new guidance relevant to the newly listed POPs represents a major task in the review and update process. The workplan focuses, among others, on the inclusion of the POPs listed in the Stockholm Convention in 2015 and 2017 in the relevant guidance (Toolkit and BAT and BEP), as appropriate.

8. Five new chemicals have been added to the Convention in 2015 and 2017 through decisions SC-7/12, SC-7/13, SC-7/14, SC-8/10, SC-8/11 and SC-8/12, namely:

- (a) Hexachlorobutadiene (HCBD) listed in Annex A without specific exemptions and in Annex C;
- (b) Pentachlorophenol (PCP) and its salts and esters listed in Annex A with specific exemptions;
- (c) Polychlorinated naphthalenes (PCNs) listed in Annex A with specific exemptions and in Annex C;
- (d) Decabromodiphenyl ether (commercial mixture, c-decaBDE) listed in Annex A with specific exemptions;
- (e) Short-chain chlorinated paraffins (SCCPs) listed in Annex A to the Convention with specific exemptions.

9. These chemicals are currently not covered in the existing guidelines and guidance on BAT and BEP, nor in the Toolkit, and work is to be initiated to include provisions for these POPs in the relevant guidance.

10. A second major aspect to be dealt with intersessionally pertains to the collection of information relevant to the identification and management of POPs contaminated sites and development of relevant guidance.

11. The Secretariat also informed of the outcomes of the effectiveness evaluation process pertaining to Article 5. Challenges in respect of the limited quality and completeness of inventory results, consistency and comparability of data reported for various reference years, use of Toolkit as the recommended methodology for the development of inventories, have been highlighted. The effectiveness evaluation has been hampered by the reported data under Article 15, including but not limited to inventories of unintentional POPs, that lack in both quality and completeness. Following the recommendations of the effectiveness evaluation, a validation and feedback process for all data and information reported under Article 15 will be initiated by the Secretariat. The involvement of the Toolkit and BAT and BEP experts in the validation steps of reported data as they pertain to Article 5 is at the core of the mandate given to the experts by the COP, and their involvement in this process should be facilitated by the Secretariat.

12. It is important that the recommendations of the Toolkit and BAT and BEP experts regarding the use of the Toolkit methodology for the elaboration of source inventories and release estimates under Article 5 and the focus of the inventories on PCDD/PCDF as indicative of all other unintentional POPs while ensuring the quality of the inventory results are properly considered and implemented by Parties. The feedback process for national reports under Article 15 needs to ensure that these issues are given appropriate consideration.

III. Toolkit for Identification and Quantification of Releases of Dioxin, Furans and Other Unintentional Persistent Organic Pollutants and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C

3.1. Status of the work for review and update

13. Ms. Heidelore Fiedler, Örebro University, Sweden, gave an overview of the progress on the updating of the Toolkit. New information has been collected in the frame of the project entitled "Inventory Methodology of Unintentionally Produced POPs" which has been initiated and will be conducted over the period 2016-2020. The project is jointly implemented by Germany (Ms. Heidelore Fiedler) and China (Mr. Gang Yu). The activities conducted to date include a systematic literature review including scientific publications and government reports containing emission factors for unintentional POPs and/or source related quantitative information on releases of unintentional POPs.

14. Emission factors (EF) were compiled for PCB, HCB and PeCBz and their correlation with PCDD/PCDF emission factors studied. No emission factors were found for indicator PCB (PCB6) or otherwise aggregated PCB congeners. For dl-PCB, 286 EF were found in total, of which Air = 233, Residue = 23, Product = 25, and Land = 5. For HCB, 206 EF were compiled, of which Air = 149, Product = 57. For PeCBz 78 EF in total of which Air = 39, Product = 39; and none for water, residue or land.

15. Most information available was for dl-PCB and to a lesser extent for HCB. Information for PeCBz is scarce. Almost exclusively EF(Air) are available and to a lesser extent for other vectors. There was a good coverage for unintentional POPs in chemicals/mixtures; however, often production processes or production volumes are not known.
16. Based on results to date, a number of new emission factors for dl-PCB, HCB and PeCBz are proposed for addition to the Toolkit. They were assigned to source categories and classes to match the Toolkit structure. A preliminary comparative inventory for China has also been developed to pilot test the proposed EF.
17. A significant relationship was observed between EFAir of dl-PCB and PCDD/PCDF for source groups 1, 2 and 6. For other source groups, the correlation was not significant. For SG 7 there was no obvious correlation among EF for HCB and PeCBz. These findings confirm in most cases the assumption that PCDD/PCDF are generated from the same sources and through the same mechanisms as the other unintentional POPs listed in Annex C and that same control measures will reduce their formation and releases. For specific chemical production processes such as the production of chlorinated solvents this may however not be true. Less conclusive data are available with respect to the correlation between releases of PCDD/PCDF and HCB and there still is a data gap for PeCBz. Work to fill such gaps is ongoing in the frame of the project and more data may come in later.
18. HCBd data have not yet included but can be compiled in the Excel sheet along with the existing PCB, HCB and PeCBz data. Regarding PCNs, there is a lack of information as to the congeners assessed in the development of emission factors that are currently available in literature. TEQ for PCNs have not yet been defined. Work will also be initiated in the frame of the global monitoring plan for POPs to address these issues and will inform the ongoing work on the newly listed POPs in the frame of the Toolkit and BAT and BEP guidance review process. A harmonized approach needs to be considered under the Convention.
19. The overall conclusion remains that the PCDD/PCDF inventory is indicative of other unintentional POPs. For specific sources for which the correlation is not verified, it was agreed to concentrate on the value added of additional inventory work, for instance by focusing on the larger sources of unintentional POPs (HCB, PeCBz, HCBd, PCNs) which are not in correlation with PCDD/PCDF, in particular certain chemical production processes. The focus of the Toolkit work should be directed at providing practical and efficient guidance for Parties to ensure and enhance QA/QC of inventories.
20. Ms. Ana Witt, Secretariat, informed on behalf of Mr. Emanuel Fiani, French Agency for Environment and Energy Management, on the status of the work on the guidelines and guidance on BAT and BEP under Article 5 and Annex C of the Convention. The focus of the ongoing work remains on the six priority chapters, five of which have already undergone review and update, namely:
- (a) V.B Cement kilns firing hazardous waste;
 - (b) V.D Thermal processes in the metallurgical industry;
 - (c) VI.B Thermal processes in the metallurgical industry not mentioned in annex C part II;
 - (d) VI.D Fossil fuel-fired utility and industrial boilers;
 - (e) VI.E Firing installations for wood and other biomass fuels;
 - (f) V.C Production of pulp using elemental chlorine or chemicals generating elemental chlorine (for which discussions have just started).
21. Among these, three chapters have been completed to date (V.B Cement kilns firing hazardous waste, V.D Thermal processes in the metallurgical industry, VI.E Firing installations for wood and other biomass fuels). The translation and insertion of the revised chapters into the overall guidelines and guidance was highlighted as a priority area for the current intersessional period. The Secretariat will provide clear information on the Convention website that these revised chapters supersede the 2007 versions and ensure their translation and inclusion in the overall guidelines.

3.2. New areas for review and update

22. In accordance with the workplan for review and update, the Secretariat has compiled information relevant to sources of releases and measures to address releases for the newly listed POPs. The major sources of information have been the evaluations conducted by the POPs Review Committee, in particular the risk management evaluations and relevant documents referenced therein and the inventory guidance developed as part of the NIP update guidance that was issued in 2017 (for HCBd, PCNs, and PCP).

23. HCBd and PCNs have been listed in Annex C (unintentional generation), and also in Annex A (intentional production). HCBd is no longer intentionally produced and used, therefore only the provisions of the Basel Convention apply for HCBd containing wastes. PCNs have been listed in Annex A with specific exemption for production and use as intermediates in production of polyfluorinated naphthalenes, including octafluoronaphthalene. There is no information currently available about such production and use, and more details will be needed to fill this information gap. Therefore, the focus of the work to address these chemicals in the Toolkit and in the BAT and BEP guidance shall be towards addressing the provisions for their unintentional generation and subsequent listing in Annex C, for which there is a larger information base.

3.2.1. HCBd

24. The major source of unintentional generation of HCBd is reported to be the production of chlorinated hydrocarbons, particularly of perchloroethylene and trichloroethylene, and to a lesser extent other processes during the manufacture of chlorinated chemicals. Other sources of unintentional formation of HCBd that are less important are the manufacture of magnesium and incineration processes. Releases from high temperature incineration processes are negligible under the BAT and BEP conditions.

25. It was noted that the BAT and BEP guidelines chapter on chemical production needs to be updated and relevant information on the newly listed Annex C chemicals should be included in the ongoing update. Similarly, HCBd data could be added to the Toolkit.

3.2.2. PCNs

26. PCNs are reported to be unintentionally formed together with other unintentional POPs such as PCDD/PCDF via similar mechanisms. Of the known releases, waste incineration is considered the most significant current source. Other sources are smelting in the secondary non-ferrous metallurgical industry (e.g. copper), and aluminium refining. Another source is production processes of chlorinated chemicals.

27. Similarly, as in the case of HCBd, the guidelines and guidance on BAT and BEP under Article 5 will apply, however the chapter on chemicals production will likely need enhancing to properly address aspects relevant to other unintentional POPs than PCDD/PCDF. Waste aspects are addressed in relevant technical guidelines under the Basel Convention.

28. The issue of harmonization of approaches related to toxicology and TEQ aspects of PCNs has been raised. There will be work initiated to address these aspects under the GMP which is important to inform the work under Article 5.

29. The NIP inventory guidance on PCNs contains information on unintentional releases and emission factors for PCNs from the sources specified in Parts II and III of Annex C. However, this information lacks metadata to enable its evaluation by the Toolkit experts. Details are lacking in respect of which congeners were assessed for the development of emission factors. The GMP will also work on the definition of congeners to be considered as analytes for environmental and human monitoring which will provide further relevant details in the work under Article 5. It was also noted that the NIP inventory guidance development for intentional POPs could benefit from the expertise in the Toolkit and BAT and BEP expert process to enhance consistency and quality of the guidance.

3.3. Proposal for 2017-2018 intersessional work on the Toolkit and on the guidelines and guidance on BAT and BEP under Article 5

3.3.1. Cross-cutting aspects

30. The general recommendation that all Parties should prepare a full and complete PCDD/PCDF inventory as part of their Article 5 obligations and submit it through Article 15

reporting should be implemented. Inventories should be revised at regular intervals in order to assess if action plans to eliminate/minimize releases of POPs are effective.

3.3.2. Toolkit

| Topic / Issue | Proposed amendments | Possible contributions |
|---|--|---|
| Confirm correlation with PCDD/PCDF formation and releases | Confirmatory statement in the relevant chapter (more details may be included in the second layer in the Toolkit) PCB, HCB, PeCBz, PCN HCBD information (in waste incineration) is not available (check info from BiPRO 2015) | Lead Heidi |
| Corrections of the Toolkit emission factors | Undertake corrections of identified mistakes in the Toolkit emission factors | Lead Heidi |
| Filling gaps with new readily available information | HCB, PeCBz, PCB | All |
| Integrate PCN EFs in the Toolkit | PCN releases from polyfluorinated naphthalene solvents production in Russia to be checked; PCN analytes to be agreed | Sergey to check Russian info. Lead Minghui Harmonize with the GMP group |
| Identify major sources specific of HCBD | Chlorinated solvent production; Magnesium production (see whether this is still a relevant process) | Lead on solvent prod. Cynthia |
| HCBD | Collect relevant case studies (look into Japanese study by Prof. Takasuga) | All |

Waste related issues to be addressed in the Basel Convention technical guidelines

3.3.3. Guidelines and Guidance on BAT and BEP

| Section | Proposed amendments | Workload | Priority |
|---|--|-------------------------------|---------------------------------------|
| I. Introduction | Expert knowledge only Info on formation of unintentional POPs with regards to the newly listed ones I.C needs to be updated for PCB, HCB, PeCBz, PCN, HCBD | Low | X for PCB, HCB, PeCBz, PCN, HCBD |
| II. Alternatives | <i>not adressed</i> | | |
| III. Guidance/principles/cross-cutting issues | Expert knowledge only III.C needs to be updated for PCB, HCB, PeCBz, PCN, HCBD (same as Toolkit) Check if new info on abatement techniques is available Chapter III.C (vi) Update the table with analytical methods (Chinese method to include) | Low | X for PCB, HCB, PeCBz, PCN, HCBD |
| IV. Compilation of summaries | - | Consider whether still needed | |
| V.A Waste incineration | Expert knowledge only New draft BREF is not reflected. Check for information on PCB, HCB, PeCBz, PCN, HCBD and confirm that PCDD BAT&BEP applies | Low | X X for PCB, HCB, PeCBz, PCN, HCBD |
| B Cement | HCB-containing fuels (Transfer to products) BREF CLM 2013 | Medium | X Done |

| | | | |
|--|---|--|---|
| V.C Pulp&paper | BREF PP 2014 (Performance levels investigate on existing processes, in particular bleaching agents, recycling, and non-wood pulp) | Medium | X No progress |
| V.D Thermal processes - metals | Austria input (BREF) BREF NFM 2014 BREF I&S 2012 | High | X Done |
| VI.A Open burning | Toolkit Individual publications | Low | |
| VI.B Thermal processes – metals – other than V.D | BREF NFM 2014 BREF I&S 2012 including new sub-categories (ZnO as a food product) | High | X |
| VI.C - Residential | Toolkit / Experience from Austria and France (Case studies are questioned) | Medium | |
| VI.D Fossil-fuel / boilers | BREF LCP 2014 / Toolkit (co-firing) | Low | X |
| VI.E Biomass-firing | BREF LCP 2014 / Toolkit | Low | X |
| VI.F Chemical processes | BREF LVOC / Toolkit / and other info on production of dyes, solvents, pesticides ... Update Chapter 1 Process description with existing processes for PCP production (China, India, Mexico, Brazil...) Which countries produce chlorinated chemicals/ solvents relevant as sources of POPs? Check Annex 1 for relevance and completeness | High BREF may be not sufficient source of information | X Update for PCDD/PCDF New for PCB, HCB, PeCBz, PCN, HCBd |
| VI.G Crematoria | France | Low | |
| VI.H Motor vehicles | Toolkit / individual publications | Medium | |
| VI.I Destruction of animal carcasses | No | - | |
| VI.J Textile and leather | BREF TXT 2013 / Toolkit | Medium | |
| VI.K Shredder plants | Toolkit | Low | |
| VI.L Smouldering of copper cables | Toolkit (Emphasis on e-waste recycling) | Low | |
| VI.M Waste oil refineries | BREF WT 2006 | Medium | |
| New categories | e.g. Toolkit (source group#4) | Very high | |

Waste related issues to be addressed in the Basel Convention technical guidelines

Note: In the review of the chemical industry BREFs specific considerations pertaining to POPs are to be included, however, it is not clear whether HCBd and PCNs will be included at this stage. In the 2003 BREF these chemicals are not considered.

3.3.4. Timelines

31. The work on the update of the Toolkit and of the guidelines and guidance on BAT and BEP is highly complex and requires significant time and effort going beyond COP cycles. As per past practice to address the high complexity of the work, implementation arrangements over a long timeframe are in place and should be continued, with regular assessments of progress to address and re-channel the further work. Substantive progress reports shall be transmitted to the COP including those finalized chapters made available over a biennium.

IV. Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B to the Stockholm Convention

4.1. PCP

32. PCP is listed in Annex A with specific exemptions for production and use for utility poles and cross-arms. The listing provisions include requirements for each Party that has registered for the exemption to take measures to ensure that utility poles and cross-arms containing PCP can be easily identified by labelling or other means throughout their life cycle. Articles treated with PCP should not be reused for purposes other than those covered by the exemption.

33. Labelling of PCP containing articles is difficult. A large proportion of products and articles containing PCP are in use since before the listing and the labelling provision of the Convention, and pass to waste streams. Labelling does not capture those contaminated articles which are in use or which have been turned to waste before listing in the Convention. Such products and articles need to be identified and screening methods made available to ensure their identification and separation.

34. Another related issue is that of recycling/energy recovery using treated wood. The Toolkit contains information on the combustion of treated wood in respect to PCDD/PCDF releases. BAT and BEP aspects of using treated wood also have to be considered. The Basel Convention technical guidelines also cover this aspect. PCDD/PCDF contamination of PCP (product) is covered in the Toolkit and in the chemical production chapter of the BAT and BEP guidelines.

35. BAT should cover prevention/ minimization of releases during production processes (there is a need to cross-link with the chemicals chapter in the guidelines and guidance on BAT and BEP under Article 5 which will also undergo update), in the process of treatment of wood and the subsequent use of treated wood (information is contained in existing relevant BREF and Environment Canada guidance). Information on alternatives is available from existing sources but it needs update. A more recent review of the status of PCP production (including major production sites and production processes) should also be conducted. Aspects pertaining to ESM of PCP wastes are contained in the relevant Basel Convention technical guidelines.

4.1.1. Proposal for 2017-2018 intersessional work on PCP

36. Guidance on BAT and BEP for the production and use of PCP will be developed covering the following areas:

- (a) Background and introduction including the wider issue of POPs used for wood preservation incl. HCH, endosulfan;
- (b) General cross-cutting EMS aspects;
- (c) Specific BAT and BEP for PCP production and use incl. alternatives:
 - (i) Production - Include more details on the production methods for which further information needs to be collected; there needs to be a link with the relevant information included in the chemicals chapter in the guidelines and guidance on BAT and BEP under Article 5 which will also be improved in the intersessional period;
 - (ii) Uses:
 - a. Specified under specific exemptions (information available in relevant BREF, Env. Canada guidance);
 - b. Historical uses of PCP – Address the issue of screening and identification of PCP containing products and articles in use;
 - c. Uses of PCP salts and esters – such uses are not clear based on available information to date and more information collection is needed;
 - d. Uses not granted in the Convention e.g. particle boards – ongoing project on wood preservation in India will provide some new information on alternatives in developing regions (Austria to contribute); more specific information from other regions will be needed;

- e. Articles in use – Address the issue of identification, separation, labelling (major issues for developing regions are identification and traceability).
- (iii) Alternatives and substitution: Collect more information on alternatives, especially for developing regions, and assess feasibility and safety. The information currently available on alternatives needs updating / re-framing;
- (d) End-of life aspects;
- (i) Collect information on experiences from countries regarding separation of demolition waste (Austria, Germany, Brazil to contribute);
- (ii) Collect information / case studies on end-of-life treatment and evaluate and ensure consideration of the relevant information in the adequate forums under the Basel Convention:
- a. Case studies on e.g. biomass burning and subsequent use of ashes (Brazil, Italy) and link with the relevant chapter in the BAT and BEP guidelines under Article 5 – could be used for strengthening that chapter;
- b. Recycling considerations for wastes with PCP content below the Basel Convention low POP content (Japan to share based on current experience and existing reports).

37. Timelines and milestones:

| | |
|-----------------------|--|
| End November 2017 | Draft outline of the guidance (Secretariat to develop and circulate to BAT BEP experts and other participants at the 2017 meeting as relevant) |
| December 2017 | Comments on the draft outline by the experts and information submission as agreed at 2017 meeting (see above) |
| April 2018 | Zero draft guidance to be developed by the Secretariat in consultation with the experts based on the agreed outline and information submissions. The zero draft guidance will be circulated with comments by end of May 2018 |
| June 2018 | Revision of the zero draft according to comments |
| June–July 2018 | First draft guidance on the basis of the evaluation of the information made available on the Stockholm Convention website by 29 June 2018 for comments by the experts and by Parties and others prior to 31 July 2018 |
| August 2018 | Secretariat compiles additional information submitted by that date and comments from the experts and from Parties and others and sends the compilation to experts by 5 August 2018 |
| September 2018 | Revised draft guidance on the basis of the comments received and additional information collected (Secretariat in consultation with the experts) |
| October/November 2018 | Joint meeting of the Toolkit and BAT and BEP experts to finalize the draft |

4.2. SCCPs

38. Information relevant to sources of releases throughout the life cycle and on possible measures to address releases is only available from the POPRC RME. No specific studies on SCCPs emission control techniques are available. It is reported that major releases of SCCP occur during production or uses in metal and leather industry. These are covered under the Industrial Emissions Directive (former Integrated Pollution Prevention of Control Directive) including (depending on the size of operation): production of chlorinated paraffins, metal working (though only large companies in the ferrous and nonferrous metals sectors), some plastics compounding/conversion sites and leather processing sites (larger sites only). General

emission control techniques for these sectors (metal, leather and textile working etc.) can be found in the corresponding EC BREFs, but are not specific to SCCPs.

39. In relation to SCCPs in CP mixtures, the RME notes that BAT could include an additional process step prior to production to purify the feedstock. BEP could include taking steps to establish quality control and quality assurance procedures to purchase and use feedstocks that do not contain short-chain lengths. Measures are documented in the relevant BREF document. BAT needs to respect the limit of SCCPs in medium or long chained paraffins as defined in the Convention.

40. The issue of screening and identification of SCCPs in articles and products is challenging with large difficulties in measuring SCCPs in products. There is ongoing work in the EU to develop reference methods for SCCPs (and for PCNs). Analytical challenges for environmental matrices and human biomonitoring will also be considered in the GMP. Finally, some standard methods also exist to differentiate between short chain and medium chain CPs and provide some initial guidance on how to approach this aspect.

41. Overall, analytical capacity for the newly listed POPs, in particular those analytically complex such as PFOS and SCCPs, is lacking in most developing countries; therefore the BAT and BEP aspects are even more relevant. Simple screening techniques will be useful.

42. With respect to alternatives there is a need for more information and to re-assess feasibility and safety (for instance MCCPs are assessed under REACH and there are some PBT concerns).

43. The topic of waste and end of life treatment was also addressed. There will be work in the current biennium under the Basel Convention to develop technical guidelines and define low POP content.

44. The information currently available on production, uses, and alternatives is very limited. Further information collection will be needed to fill large information gaps. Industry input will be needed. As part of the process of review of the information related to specific exemptions for SCCPs there will be information collection on these same aspects, including production; uses; efficacy and efficiency of possible control measures; information on the availability, suitability and implementation of alternatives. In this process, information submission by Parties will be invited by December 2019, the compilation of information will be transmitted to POPRC by January 2020, and POPRC will prepare a report, including any recommendations, for consideration by the COP in 2021.

45. In view of the limited information available to date, the likely future availability of more information through the process of review of information related to the specific exemptions, and parallel ongoing processes (Basel Convention technical guidelines), the work in the intersessional period can focus on targeted information collection to fill some of the data gaps identified as a priority.

4.2.1. Proposal for 2017-2018 intersessional work on SCCPs

46. Information collection will continue to address the gaps identified, in particular on:

- (a) Uses (highlighted in bold are those uses for which very little information is available):
 - (i) Additives in the production of transmission belts in the natural and synthetic rubber industry;
 - (ii) Spare parts of rubber conveyor belts in the mining and forestry industries;
 - (iii) Leather industry, in particular fat liquoring in leather;
 - (iv) Lubricant additives, in particular for engines of automobiles, electric generators and wind power facilities, and for drilling in oil and gas exploration, petroleum refinery to produce diesel oil;
 - (v) Tubes for outdoor decoration bulbs;
 - (vi) Waterproofing and fire-retardant paints;
 - (vii) Adhesives;
 - (viii) Metal processing;

- (ix) Secondary plasticizers in flexible polyvinyl chloride, except in toys and children's products;
 - (b) Information on uses from recent publications on inventories of SCCPs (e.g. China – already available, collect information on inventories in other regions);
 - (c) Alternatives;
 - (d) Identification and screening - Information on methods for differentiating between short chain and medium chain CPs (Japan, EU); screening methods in products (OECD method for leather and conveyor belts; Japan; EU reference method for food and feed).
47. Timelines and milestones:
- | | |
|-----------------------|--|
| By April 2018 | Information collection on priority areas (above) |
| May 2018 | Compilation of information by the Secretariat is circulated to the experts for feedback and additional input |
| August-September 2018 | Updated compilation of information based on additional input |
| October/November 2018 | Joint meeting of the Toolkit and BAT and BEP experts to consider the additional information and agree on way forward based on information available to that date |

4.3. DecaBDE

48. Information relevant to sources of releases throughout the life cycle and on possible measures to address releases is also only available from the POPRC RME. For certain uses which were reviewed in depth by POPRC, quite a lot of information exists (for the uses recommended by the POPRC as specific exemptions). For other uses, however, information gaps exist.
49. Similarly, as for SCCPs, there will be work in the current biennium on the Basel Convention technical guidelines and to define the low POP content; also the process for review of information related to the specific exemptions will be initiated as of 2019. Relevant new information will likely become available in the longer term. It was also noted that with respect to the chemicals listed in 2017 (SCCPs and DecaBDE), the mandate of the experts in the current biennium relates to assessing the need for guidance. The amendments to list these chemicals in the Convention will only enter into force on the expiry of one year from the date of communication by the depositary of the amendments (for most Parties).
50. Similarly, as noted for SCCPs, the work in the intersessional period can focus on targeted information collection to fill some of the data gaps identified as a priority. Industry input (BSEF) is important and needs to be ensured.
51. Discussions were held as to the form of future guidance on BAT and BEP for decaBDE. A number of opinions were in favour of including considerations for decaBDE in the existing PBDE guidance, while others favoured a stand-alone guidance. The complexity of the uses under specific exemptions of decaBDE and the lack of the recycling exemption for decaBDE as opposed to the other listed PBDEs could pose challenges in addressing with clarity all issues in an overall BAT BEP guidance addressing all PBDEs. On the other hand, certain parts/chapters of the PBDE BAT BEP guidance do apply to decaBDE and work to streamline BAT and BEP considerations for the 2009 listed BDEs (recycling exemption) and for c-decaBDE (production and use for specific exemptions) into one overall guidance could prove useful. Such guidance would need to be very clear as to which issues are applicable to decaBDE and which to the 2009 listed PBDEs. Opening the PBDE BAT and BEP guidance will also provide the opportunity to work further on enhancing its user friendliness.

4.3.1. Proposal for 2017-2018 intersessional work on decaBDE

52. Information collection will continue to address the gaps identified, in particular on:
- (a) Production (amounts, processes, production sites);
 - (b) Use under specific exemptions:
 - (i) Parts for use in vehicles as follows:

- a. Parts for use in legacy vehicles, defined as vehicles that have ceased mass production, and with such parts falling into one or more of the following categories:
 - b. Powertrain and under-hood applications such as battery mass wires, battery interconnection wires, mobile air-conditioning (MAC) pipes, powertrains, exhaust manifold bushings, under-hood insulation, wiring and harness under hood (engine wiring, etc.), speed sensors, hoses, fan modules and knock sensors;
 - c. Fuel system applications such as fuel hoses, fuel tanks and fuel tanks under body;
 - d. Pyrotechnical devices and applications affected by pyrotechnical devices such as air bag ignition cables, seat covers/fabrics (only if airbag relevant) and airbags (front and side);
 - e. Suspension and interior applications such as trim components, acoustic material and seatbelts;
- (ii) Parts in vehicles specified in paragraphs (a) (i) to (iv) above and those falling into one or more of the following categories:
 - a. Reinforced plastics (instrument panels and interior trim);
 - b. Under the hood or dash (terminal/fuse blocks, higher-amperage wires and cable jacketing (sparkplug wires));
 - c. Electric and electronic equipment (battery cases and battery trays, engine control electrical connectors, components of radio disks, navigation satellite systems, global positioning systems and computer systems);
 - d. Fabric such as rear decks, upholstery, headliners, automobile seats, head rests, sun visors, trim panels, carpets;

(Note: Information is available on most spare parts; Some uses such as polyurethane foam for building insulation – see below - need to be confirmed)

- (iii) Aircraft for which type approval has been applied for before December 2018 and has been received before December 2022 and spare parts for those aircraft;
- (iv) Textile products that require anti-flammable characteristics, excluding clothing and toys;
- (v) Additives in plastic housings and parts used for heating home appliances, irons, fans, immersion heaters that contain or are in direct contact with electrical parts or are required to comply with fire retardancy standards, at concentrations lower than 10% by weight of the part;
- (vi) Polyurethane foam for building insulation;

(c) Alternatives.

53. The applicability of PBDE guidance – plastics section – should be assessed. If considerations for BAT and BEP for decaBDE are merged with the existing guidance on BAT and BEP for PBDEs, the structure of the document needs to be entirely re-worked. Note the important role of screening of decaBDE to differentiate for recycling purposes.

54. A proposed outline of overall guidance on PBDEs to address BAT and BEP considerations for 2009 listed PBDEs (recycling exemption) and for decaBDE (production and use for specific exemptions) will be developed over this intersessional period to enable further discussions on way forward.

55. Timelines and milestones:

| | |
|---------------|---|
| By April 2018 | Information collection on priority areas (above) |
| May 2018 | Compilation of information and development of a draft outline for an overall guidance on PBDEs to address BAT BEP considerations for 2009 listed BDEs (recycling exemption) and for decaBDE (production and use for |

| | |
|-----------------------|---|
| | specific exemptions) by the Secretariat in consultation with the experts |
| June 2018 | Circulate for feedback and additional input from experts |
| August 2018 | Updated proposed outline based on comments; circulate before 2018 expert meeting |
| October/November 2018 | Joint meeting of the Toolkit and BAT and BEP experts to consider the new information and the proposed outline for overall guidance and agree on way forward |

V. Contaminated sites

56. Ms. Martha Wepner-Banko, Environment Agency Austria, presented the EU Common Forum activities and approaches on Contaminated Land management. The forum provides a wide platform for exchange of knowledge and experiences on policy, research, technical and managerial concepts of contaminated land, for international review of best practices, and for ad-hoc contribution and information exchanges within international experts in the field of contaminated sites. The relevance of the activities of the Forum in respect to the ongoing work on POPs contaminated sites and BAT and BEP aspects has been highlighted and potential contribution towards development of guidance on POPs contaminated sites welcomed.

57. Mr. Lee Bell, IPEN, introduced a draft proposal for developing guidance on POPs contaminated sites, including a draft outline of the structure and content of the proposed contaminated sites guidance, a preliminary compilation of materials to contribute to the ongoing development of the contaminated sites guidance, and a proposed road map for development of guidance.

58. Difficulties in the definition of contaminated sites have also been raised. In different countries different standards apply e.g. levels and thresholds of the contaminants, potential for exposure, climate and seasonal factors etc. Even within the EU Common Forum, most countries have very different definitions of contaminated sites. The thresholds are also very different and complex. It is difficult to compare between countries.

59. It would be very difficult to work towards a definition for contaminated sites; rather a more flexible way should be considered such as a general approach or a set of criteria.

60. Discussions focused on the applicability of such guidance in developing countries. There will be a need to include specific considerations for the challenges that developing countries are facing, e.g. proposed management options that have to consider lack of financial resources.

61. Some concerns were raised as to the project being too ambitious, as this type of issues are still challenging for all regions of the world.

5.1. Proposal for 2017-2018 intersessional work on POPs contaminated sites

5.1.1. Scope of the work

62. Guidance will be developed based on the discussions held at the meeting. The intention is not to establish thresholds and legally binding definitions but rather approaches on how to address the contaminated sites issue.

63. The purpose and difference from existing guidance (e.g. the UNIDO guidance) needs to be made clear, considering the mandate under the Convention. For instance the case studies published in the UNIDO guidance were considered not really conclusive with regards to identifying the level of contamination of the sites.

64. The Toolkit chapter on contaminated sites may be incorporated, however the guidance would go beyond that information to contain guidance on identification and management of contaminated sites and consider also the newly listed POPs.

65. The main focus, in accordance with the mandate under the Stockholm Convention is around the identification of POPs contaminated sites (some may have obviously high risk and some may be less obvious) and proposing an approach for prioritization (and for defining short and long-term goals). Several strategies for identification of sites could be considered (e.g.

systematic or ad hoc investigations). At the same time identification of further contaminants e.g. heavy metals and other chemicals should be encouraged.

66. Site investigation would include: tier one investigation - preliminary site investigation (desk top) that could identify the priority sites which would need further in depth-investigation; database tools should be considered as well; multi-criteria evaluation of the priority sites in order to establish what management options should be considered; detailed site investigation would not be addressed in the guidance. Various approaches can be documented to confirm the contamination of the suspected/potentially contaminated sites ranging from low-tech approaches such as bioassays to hi-tech screening equipment.

67. Examples of management and/or remediation strategies can be provided as case studies. Information on cost assessment and on the necessary expertise should be included as well.

68. Available guidance on various types of contaminated sites management can be consolidated them in a single document with reference to the source material. In addition to the UNIDO and other guidance identified as good sources, the FAO guidance on identification and management of POPs pesticide contaminated sites was considered useful and should be considered in the process.

5.1.2. Indicative outline and contributors

69. The following draft guidance outline has been agreed upon, and potential contributions to each chapter/section identified as follows:

- (a) Introduction (Lee, Mihaela);
- (b) Site identification (Lee, Comon Forum, Sergey, Mihaela);
- (c) Detailed Site investigation (DSI) (Lee, Mihaela);
- (d) Site Characterisation (Lee, Mihaela);
- (e) Risk Assessment and prioritization (Henk, Youssef, Mihaela);
- (f) Site Management and Remediation Approaches (Lee, Common Forum, Mihaela);
- (g) (Remediation techniques) (Lee, Jindrich, Mihaela) ;
- (h) POPs Contaminated sites: Engaging the Public (Lee, Mihaela);
- (i) Case Studies in POPs contaminated sites (Lee, Mihaela, Jindrich);
- (j) Case studies on financial mechanisms to address contaminated sites (Lee, Mihaela, Henk);
- (k) References and bibliography (Roland).

5.1.3. Sources of information

70. Among the sources of information identified the following are of high relevance: Canada - approach to contaminated sites, UNIDO guidance, FAO guidance, CLARINET Sustainable management of Contaminated Land.

5.1.4. Milestones and timelines

| | |
|-----------------------|---|
| February 2018 | Guidance outline and structure finalized |
| June–July 2018 | Draft compilation of materials made available on the Stockholm Convention website by 29 June 2018 for comments by the experts and by Parties and others prior to 31 July 2018 |
| September 2018 | Finalization of draft compilation of materials |
| October/November 2018 | Presentation of draft guidance to expert group at face to face meeting and invitation for comments electronically following meeting |
| January 2019 | Final revision of guidance completed and circulated to expert group Tabling for consideration at appropriate SC venue |

VI. Conclusions and way forward in the intersessional period

71. The outputs to be made available for consideration by COP-9 further to the 2017-2018 intersessional period will include: progress report on the Toolkit and on BAT and BEP for unintentional POPs including finalized revised chapters in all UN languages; draft guidance on BAT and BEP for production and use of PCP; draft guidance on identification and management of POPs contaminated sites.

72. For the draft guidance to be developed/updated/revised in the 2017-2018 intersessional period for submission for consideration by the COP in 2019, there will be a period of public commenting in accordance with the adopted workplan. The Secretariat shall make available the drafts on the Stockholm Convention website by 29 June 2018 for comments by Parties and others prior to 31 July 2018.

73. The next expert meeting on BAT and BEP and on the Toolkit to consider the outputs of the 2017-2018 intersessional work and develop conclusions and recommendations to COP-9 will be held in accordance to the workplan in October/November 2018. The Secretariat will consult with invited experts in establishing the exact dates of the meeting in a communication to be initiated by April 2018.

VII. Other matters

74. The meeting participants took note of the involvement of the BAT BEP experts in the PFOS alternatives assessment by the POPs Review Committee to be conducted between POPRC-13 and POPRC-14. The draft terms of reference for the assessment contain provisions for consultation of the experts. They will be considered by POPRC at the October 2017 meeting (POPRC-13). The final terms of reference and workplan will be communicated to the BAT and BEP experts upon their adoption by POPRC.

VIII. Closure of the meeting

75. The Secretariat thanked the experts for their active participation and contribution to the meeting and commitments for continued involvement in the future work. The meeting was closed on Thursday 5 October 2017 at 13:00.

Annex I to the report: List of Participants

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Annex II to the report: Agenda and Programme

I. Meeting agenda

1. Opening;
2. Introduction and context:
 - (a) Outcomes of COP-8 relevant to the Toolkit and BAT and BEP;
3. Toolkit for Identification and Quantification of Releases of Dioxin, Furans and Other Unintentional Persistent Organic Pollutants and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C:
 - (a) Status of the work for the review and update;
 - (b) New areas for review and update:
 - (i) HCBD;
 - (ii) PCNs;
4. Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B to the Stockholm Convention:
 - (a) Status of the work for the review and update;
 - (b) New areas for review and update:
 - (i) PCP;
 - (ii) SCCPs;
 - (iii) DecaBDE;
5. Contaminated sites;
6. Conclusions and way forward in the next intersessional period;
7. Other matters;
8. Closure of the meeting.

Expected Outputs

1. Information relevant to sources of releases of and BAT and BEP for the newly listed chemicals is assessed and considered in the development of proposals for updating existing guidance and/or developing additional guidance.
2. Proposals for updating existing guidance and/or developing additional guidance are developed and agreed for each area of work according to the adopted workplan, including:
 - Evaluation of the new information available;
 - Identification of additional information sources;
 - Considerations for integration of new information into existing guidance documents / development of new guidance;
 - Identification of contributors;
 - Workplan with milestones and timelines for the 2017-18 intersessional period.

II. Meeting Programme

| Tuesday 3 October 2017 | | |
|------------------------|--|---------------------------------|
| 09:30-10:30 | Opening of the meeting <ul style="list-style-type: none"> - Welcome and introduction of the participants; - Adoption of meeting agenda and programme; - Meeting objectives and organizational matters; | Secretariat All participants |

| | | |
|---------------------------------|--|--|
| | Introduction and context: <ul style="list-style-type: none"> - Outcomes of COP-8 relevant to the Toolkit and BAT and BEP; | Secretariat |
| 10:30-11:00 | <i>Coffee break</i> | |
| 11:00-12:30 | Toolkit for Identification and Quantification of Releases of Dioxin, Furans and Other Unintentional Persistent Organic Pollutants and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C: <ul style="list-style-type: none"> - Status of the work for the review and update; <ul style="list-style-type: none"> - Toolkit; - BAT and BEP; - New areas for review and update: <ul style="list-style-type: none"> - HCBd; - PCNs; | Heidi Fiedler Emmanuel Fianni Secretariat |
| 12:30-14:00 | <i>Lunch break</i> | |
| 14:00-15:30 | Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C (cont.): <ul style="list-style-type: none"> - Discussion on way forward: <ul style="list-style-type: none"> - Evaluation of the new information; - Identification of additional information sources; - Integration of new information into existing guidance documents; - Contributors; Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B: <ul style="list-style-type: none"> - Status of the work for the review and update; - New areas for review and update: <ul style="list-style-type: none"> - PCP; - Discussion on way forward; - SCCPs; - Discussion on way forward; | All Secretariat Secretariat All Secretariat All |
| 15:30-16:00 | <i>Coffee break</i> | |
| 16:00-17:30 | Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B (cont.): <ul style="list-style-type: none"> - New areas for review and update: <ul style="list-style-type: none"> - DecaBDE; - Discussion on way forward; Contaminated sites: <ul style="list-style-type: none"> - Status of the work; - Discussion on way forward; | Secretariat All Roland Weber, Lee Bell All |
| Wednesday 4 October 2017 | | |
| 9:00-10:30 | Group work to develop proposals for updating existing guidance and/or developing additional guidance: <ul style="list-style-type: none"> - Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B: PCP; | Two working groups in parallel |
| 10:30-11:00 | <i>Coffee break</i> | |

| | | |
|--------------------------------|--|--------------------------------|
| 11:00-12:30 | Group work to develop proposals for updating existing guidance and/or developing additional guidance: <ul style="list-style-type: none"> - Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B: SCCP; | Two working groups in parallel |
| <i>12:30-14:00</i> | <i>Lunch break</i> | |
| 14:00-15:30 | Group work to develop proposals for updating existing guidance and/or developing additional guidance: <ul style="list-style-type: none"> - Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B: DecaBDE; | Two working groups in parallel |
| <i>15:30-16:00</i> | <i>Coffee break</i> | |
| 16:00-17:30 | Group work to develop proposals for updating existing guidance and/or developing additional guidance: <ul style="list-style-type: none"> - Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Contaminated sites; | Two working groups in parallel |
| Thursday 5 October 2017 | | |
| 9:00-10:30 | Group work to develop proposals for updating existing guidance and/or developing additional guidance (cont.): <ul style="list-style-type: none"> - Thematic areas to be decided depending on progress | Two working groups in parallel |
| <i>10:30-11:00</i> | <i>Coffee break</i> | |
| 11:00-12:30 | Outcomes of group work: <i>Presentations by the groups of proposals on:</i> <ul style="list-style-type: none"> - Toolkit; - Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B: PCP; | Working group leads |
| <i>12:30-14:00</i> | <i>Lunch break</i> | |
| 14:00-15:30 | Outcomes of group work (cont.): <i>Presentations by task teams of draft proposals on:</i> <ul style="list-style-type: none"> - Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B: SCCP; - Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B: DecaBDE; - Contaminated sites; | Working group leads |
| <i>15:30-16:00</i> | <i>Coffee break</i> | |
| 16:00-17:30 | Conclusions and way forward in the next intersessional period Other matters | All |
| 17:30 | Closure of the meeting | |

Annex II

Report of the Expert Meeting on Best Available Techniques and Best Environmental Practices and Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional Persistent Organic Pollutants under the Stockholm Convention, Bratislava, Slovakia, 9-11 October 2018

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I. Opening of the meeting

1.1 Welcome and introduction of participants

1. The expert meeting on Best Available Techniques (BAT) and Best Environmental Practices (BEP) and the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional Persistent Organic Pollutants under the Stockholm Convention (Toolkit) was organized by the Secretariat of the Basel, Rotterdam and Stockholm Conventions in collaboration with the Basel Convention Regional Centre for Training and Technology Transfer for Central Europe in Slovakia. The meeting was held from 9 to 11 October 2018 in Bratislava, Slovakia.
2. The meeting was opened by Ms. Katarina Magulova, Secretariat of the Basel, Rotterdam and Stockholm Conventions.
3. The participants introduced themselves by stating their names, affiliation and area of expertise. The list of participants is attached to this report as Annex I.

1.2 Adoption of the agenda

4. The meeting agenda was adopted without changes (Annex II).

1.3 Objectives of the meeting

5. The aim of the meeting was to finalize the outputs of the 2017-2018 intersessional work, including the progress report on the review and update of the Toolkit and of the guidelines and guidance on BAT and BEP relevant to Article 5 and Annex C, and new draft guidance on BAT and BEP for the production and use of pentachlorophenol listed with specific exemption under the Stockholm Convention, for consideration by the Conference of the Parties at its ninth meeting. The experts have also developed their workplan for the next biennium and conclusions and recommendations to COP-9.

1.4 Organizational matters

6. The meeting was held according to the programme set out in Annex II to this report. Working group sessions were organized to address the specific topics covered in the 2017-2018 workplan.

II. Introduction and context

2.1 Overview of the outcomes of the 2017-2018 intersessional period

7. Ms. Ana Witt, Secretariat of the Basel, Rotterdam and Stockholm Conventions, provided an overview of the intersessional work that had been conducted over the period 2017-2018, including the expected outputs for submission to COP-9. For the ongoing work on issues relevant to Article 5 and Annex C, a progress report is to be presented at the COP listing the outputs to date and proposal for way forward. Regarding the work on BAT and BEP relevant to the chemicals listed in Annex A or B to the Convention, the draft guidance on BAT and BEP for the production and use of pentachlorophenol (PCP) is to be finalized for submission to the COP. In addition, intersessional work had also been conducted to consider the proposal for development of consolidated guidance on BAT and BEP for polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention, including provisions for decabromodiphenyl ether listed in 2017 in Annex A with specific exemptions for production and use. Information on analytical considerations for the newly listed POPs relevant for identification and screening has been and continues to be under assessment by the global monitoring plan. Regarding the work on contaminated sites, an agreed outline and first two chapters have been developed and there is a need to reconsider the workplan over the next intersessional period to further advance this work.

8. The need to cooperate with ongoing processes which assess issues that are of relevance to the work on the Toolkit and on BAT and BEP (e.g. technical guidelines under the Basel Convention, GMP monitoring guidance, NIP guidance) has been highlighted as essential to ensure that information is communicated in a consistent and harmonized way.

III. Toolkit for Identification and Quantification of Releases of Dioxin, Furans and Other Unintentional Persistent Organic Pollutants

9. Ms. Heidelore Fiedler, Örebro University, Sweden, gave an overview of the progress on the updating of the Toolkit. Based on results to date, a number of new emission factors for dl-PCB, HCB and PeCBz have been proposed for addition to the Toolkit. They were assigned to source categories and classes to match the Toolkit structure. A preliminary comparative inventory for China has also been developed to pilot test the proposed emission factors.

10. A significant relationship was observed between EF_{Air} of dl-PCB and PCDD/PCDF for source groups 1, 2 and 6. For other source groups, the correlation was not significant. For SG 7 there was no obvious correlation among EF for HCB and PeCBz. These findings confirm in most cases the assumption that PCDD/PCDF are generated from the same sources and through the same mechanisms as the other unintentional POPs listed in Annex C and that same control measures will reduce their formation and releases. For specific chemical production processes such as the production of chlorinated solvents this may however not be true. Less conclusive data are available with respect to the correlation between releases of PCDD/PCDF and HCB and there still is a data gap for PeCBz. Work to fill such gaps is ongoing in the frame of the project and more data may come in later.

11. Regarding PCNs, there is a lack of information as to the congeners assessed in the development of emission factors that are currently available in literature. TEQ for PCNs have not yet been defined. Concerning formation and releases of these chemicals it is assumed that they correlate with PCDD/PCDF releases as well. With regards to hexachlorobutadiene (HCBd), it was decided that there is no need to develop emission factors.

12. The overall conclusion remains that the PCDD/PCDF inventory is indicative of other unintentional POPs. For specific sources for which the correlation is not verified, it was agreed to concentrate on the value added of additional inventory work, for instance by focusing on the larger sources of unintentional POPs (HCB, PeCBz, HCBd, PCNs) which are not in correlation with PCDD/PCDF, in particular certain chemical production processes. The focus of the Toolkit work should be directed at providing practical and efficient guidance for Parties to ensure and enhance QA/QC of inventories.

13. The general recommendation is that all Parties should prepare a full and complete PCDD/PCDF inventory as part of their Article 5 obligations and submit it through Article 15 reporting. Inventories should be updated at five-year intervals as stipulated in Article 5 of the Stockholm Convention in order to assess if action plans to eliminate/minimize releases of POPs are effective. These assessments have to be reflected in the updated national implementation plans under Article 7.

14. Detailed information on the progress and future workplan areas are included in the table below:

| Topic / Issue | Progress and areas for further work |
|---|---|
| Confirm correlation with PCDD/PCDF formation and releases | <p>Review of literature review was undertaken and emission factors for dl-PCB, HCB and PeCBz were developed and published in the scientific literature. Most EFs are available only for releases to air. Further work is ongoing for EFs in residues in China and the results will be communicated. For all three substances the correlation with PCDD/PCDF releases was confirmed.</p> <p><i>Emission factors for dl-PCB, HCB and PeCBz will be reviewed, described in the Toolkit and included in the Toolkit Excel sheets (by January 2019 to be provided by Heidelore Fiedler with support from Sergey Kakareka, Youssef Bennouna, Gang Yu, Minghui Zheng and Jindrich Petrlik).</i></p> <p>It is assumed that PCN releases correlate similarly, however, so far no emission factors could be presented due to the lack</p> |

| | |
|---|--|
| | <p>of agreement on the analytes to be considered. To date PCN analytes have not been agreed, including in the GMP analytical group.</p> <p><i>This work will continue over the next biennium.</i></p> <p>Since unintentionally generated HCBd was found not to have the same importance as PCDD/PCDF or dl-PCB, no further work to develop emission factors will be initiated.</p> <p><i>The relevance of HCBd contamination in the production of solvents will be further investigated.</i></p> |
| Corrections of the Toolkit emission factors | <p>No mistakes in the 2013 Toolkit emission factors for PCDD/PCDF have been identified. In contrary, new nationally generated EFs largely confirmed these emission factors in the 2013 Toolkit.</p> <p><i>Therefore, no changes of the Toolkit 2013 for PCDD/PCDF are needed.</i></p> |
| Integrate PCN EFs in the Toolkit | <p>Since PCNs are not yet defined, no emission factors can be integrated at present.</p> <p>PCN releases from polyfluorinated naphthalene solvents production in Russia have been investigated. No information on PFN solvents production was identified, therefore there is no need to create a new category in the source group 7 production of chemicals and consumer goods.</p> <p><i>There will be a need to include PCNs as potential hot spot since PCNs are still found on the market.</i></p> |
| Identify major sources specific of HCBd | <p>HCBd releases from production of magnesium was investigated but no information found.</p> <p><i>Chlorinated solvent production as a potential source of HCBd releases still needs further investigation.</i></p> |

IV. Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C

15. Ms. Ana Witt, Secretariat, informed on the status of the work on the guidelines and guidance on BAT and BEP under Article 5 and Annex C of the Convention. The lead of the task team working on the guidelines, Mr. Emanuel Fiani, French Agency for Environment and Energy Management, had notified the Secretariat of his withdrawal from the expert roster.

16. Among the sections of the guidelines that have undergone update, three are in the process of being translated for posting on the Convention's website:

- (a) V.B Cement kilns firing hazardous waste;
- (b) V.D Thermal processes in the metallurgical industry;
- (c) VI.E Firing installations for wood and other biomass fuels.

17. The update of two other sections has been progressing well:

- (a) VI.B Thermal processes in the metallurgical industry not mentioned in annex C part II;
- (b) VI.D Fossil fuel-fired utility and industrial boilers.

18. Remaining work needs to be initiated on another section of the guidelines that has been identified as a priority in the ongoing workplan: V.C Production of pulp using elemental chlorine or chemicals generating elemental chlorine (for which discussions have just started).

19. Detailed information on the progress and future workplan areas are included in the table below:

| Section | Progress report and areas for further work | |
|--|--|--|
| I. Introduction | I.C to include PCB, HCB, PeCBz, PCN, HCBd | To be performed until January 2019 (Heidi Fiedler with the Secretariat) |
| II. Alternatives | not addressed | |
| III. Guidance/principles/x-cutting issues | <p>III.C needs to be updated for PCB, HCB, PeCBz, PCN, HCBd (same as Toolkit).</p> <p>No new information on abatement techniques became available.</p> <p>Chapter III.C (vi) Update the table with analytical methods (Chinese method and EN 1948 to include)</p> | <p>To be performed until January 2019 (Heidi Fiedler with the Secretariat)</p> <p>To be performed until January 2019 (Heidi Fiedler and Minghui Zheng)</p> |
| IV. Compilation of summaries | <p>Each section contains a summary, which will be revised along with amendments of the chapter.</p> <p>The compilation of the summaries will not be revised.</p> | |
| V.A Waste incineration | To be updated after the final approval of the new BREF (include new reference) and add any other information relevant to unintentional POPs. | <p>Heidi Fiedler with the Secretariat to assist in adding the right reference</p> <p>Other work – to be identified (TBI)</p> |
| V.B Cement | <p>This chapter has been revised to include new information from BREF CLM 2013 (Heidi Fiedler with the Secretariat to assist in adding the right reference) and HCB-containing fuels.</p> <p>This chapter is available in English on the SC web page and supersedes the 2007 version. Language versions will be made available subject to the availability of resources.</p> | |
| V.C Pulp&paper | To be updated with information from BREF PP 2014 (Heidi Fiedler with the Secretariat to assist in adding the right reference) and other information relevant to performance levels of existing processes, in particular bleaching agents, recycling, and in general on non-wood pulp. | <p>Lead Heidi Fiedler and Kai Volker Schubert</p> <p>Additional expertise from industry is needed</p> |
| V.D Thermal processes - metals | <p>This chapter has been revised to include new information from BREF NFM 2014 and BREF I&S 2012 (Heidi Fiedler with the Secretariat to assist in adding the right reference)</p> <p>This chapter is available in English on the SC web page and supersedes the 2007 version. Language versions will be made available subject to the availability of resources.</p> | |
| VI.A Open burning | This chapter needs to be revised to include new information from source group 6 categories a and b from the 2013 Toolkit. | Lead Heidi Fiedler |
| VI.B Thermal processes – metals – other than V.D | This chapter has been revised to include new information from BREF NFM 2014 and BREF I&S 2012 and a new sub-category (ZnO in food) (Heidi Fiedler to double check by January 2019). | |

| | | |
|--------------------------------------|--|-----|
| | This chapter is available in English on the SC web page and supersedes the 2007 version. Language versions will be made available subject to the availability of resources. | |
| VI.C - Residential | <p>This chapter needs to be revised to include new information especially from Austria and France and to be harmonized with information contained in source group 3 category d and e of the 2013 Toolkit.</p> <p>The two case studies should be removed.</p> | TBI |
| VI.D Fossil-fuel / boilers | Needs to be revised to include new information from BREF LCP 2014 (Heidi Fiedler with the Secretariat to assist in adding the right reference) and harmonize with information contained in source group 3 category a of the 2013 Toolkit. | TBI |
| VI.E Biomass-firing | <p>This chapter has been revised to include new information BREF LCP (2013 draft – to be updated with final draft as of 2014) and harmonized with information contained in source group 3 category b of the 2013 Toolkit.</p> <p>This chapter is available in English on the SC web page and supersedes the 2007 version. Language versions will be made available subject to the availability of resources.</p> | |
| VI.F Chemical processes | <p>Needs to be revised to include new information from BREF LVOC (Heidi Fiedler with the Secretariat to assist in adding the right reference) and harmonized with information contained in source group 7 category b of the 2013 Toolkit.</p> <p>Investigate which processes as per Toolkit 2013 category 7b-e are still used to produce these chemicals.</p> | TBI |
| VI.G Crematoria | No change proposed | |
| VI.H Motor vehicles | No change proposed | |
| VI.I Destruction of animal carcasses | No change proposed | |
| VI.J Textile and leather | Needs to be revised to include new information from BREF TXT 2013 / Toolkit | TBI |
| VI.K Shredder plants | No change proposed | |
| VI.L Smouldering of copper cables | To make reference to information contained in category 2l of the 2013 Toolkit. | TBI |
| VI.M Waste oil refineries | Consider information from BREF WT 2006 (Heidi Fiedler with the Secretariat to assist in adding the right reference) and integrate if necessary. | TBI |

V. Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B to the Stockholm Convention

5.1. Draft guidance on BAT and BEP for the production and use of PCP

20. The draft guidance on BAT and BEP for the production and use of PCP has been newly developed pursuant to the expert meeting held in 2017 in Vienna, Austria based on the expert contributions received. The draft guidance has undergone two commenting periods, the first within the small expert team involved, and the second reaching out broadly to Parties and others, in addition to commenting by the Toolkit and BAT and BEP experts. Comments have been received from Austria, Argentina, Belarus, Brazil, Canada, the European Union, and from FluoroCouncil. Outstanding comments had been compiled for consideration at the meeting.

21. The experts have agreed on the way forward in addressing the comments received, in particular to restructure the document following the example of PFOS BAT/BEP guidance, to focus the document on the specific exemption application only (not addressing non-exempted uses) and targeting specifically BAT BEP, including consideration of only those alternatives that are suitable for PCP use under the specific exemption application, addition of new case studies on legislative framework, inclusion of information available from the first draft of the revised Best Available Technique Reference Document (BREF) on Surface Treatment with Solvents (STS). The draft guidance is to be revised by the Secretariat according to the discussion and agreement at the meeting, circulated for last review by the expert by the end of November 2018, and thereafter made available for consideration at COP-9.

5.2. Proposal for consolidated guidance on BAT and BEP for PBDEs

22. The experts have agreed on the proposed outline for the consolidated guidance on PBDEs. In the development of the guidance it will be important to involve Basel Convention experts and other experts with expertise on BAT and BEP for decaBDE. In particular, in-depth the identification and screening issues are of great relevance to differentiation between PBDEs and DecaBDE.

23. The focus of the work over the next intersessional period has been agreed, as a priority, on the update of the guidance on BAT and BEP for the recycling and waste disposal of articles containing polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention to include considerations for BAT and BEP for all PBDEs listed in the Convention, including for the production and use of decabromodiphenyl ether.

24. The agreed outline of the updated guidance to be developed in included in Annex III to this report. An Initial consolidated draft based on the proposed / agreed outline is to be initiated by the Secretariat for consideration at the 2019 expert meeting.

5.3. New information relevant for BAT and BEP for the newly listed POPs

25. The Secretariat informed on the ongoing deliberations in the frame of the global monitoring plan with respect to analytical considerations for the newly listed POPs. It was noted that while draft updated GMP guidance will be made available to COP-9, a number of aspects will require further intersessional work between COP-9 and COP-10 in particular on the definition of analytes for PCNs and on analytical methods for SCCPs. The information that had been made available in the frame of the GMP has been summarized in the reports of relevant meetings available on the Convention's website¹.

VI. Contaminated sites

26. Mr. Lee Bell, IPEN, presented a progress report on the status of the ongoing work contaminated sites. The outline for draft guidance and the first two chapters have been developed, however progress remains slow. The strategy for advancing with the work on contaminated sites has been discussed and agreed upon. Priority areas of work include collection of relevant information and case studies from parties and others, in particular as it relates to management and remediation, inventory development, financial mechanisms, information relevant for developing countries, countries with economies in transition, and for

¹ <http://chm.pops.int/Implementation/GlobalMonitoringPlan/Meetings/tabid/3605/Default.aspx>

developed countries, information covering a large range of scenarios and type of contamination issue e.g. pesticides, production facilities etc. and for managing multiple contaminant scenarios in single sites (e.g. covering simultaneously POPs, metals, hydrocarbons etc.), an examples of problems that can occur as well as successes. Another area of work concerns literature review and matching existing guidance with proposed BAT BEP contaminated sites guidance chapters. The aim of this exercise is to determine existing sources of guidance and match them with corresponding proposed chapter is the draft POPs contaminated sites guidance. This provides support for the structure, builds upon existing knowledge and avoids duplication of established materials, it allows for consolidation and synthesis of multiple elements of POPs guidance into a single document. The initial matching of guidance to chapters will be done by Lee Bell and circulated it to the task team for further inputs. Another important point to address concerns the link with the NIPs. Many parties have developed NIPs which may have elements related to contaminated sites inventories. In drafting it is important to highlight the linkages between NIP work, legislative frameworks and how they can interact with the draft contaminated sites guidance.

27. Responsibilities for the drafting work have been defined, with leads identified for each chapter. In particular, the need for additional expertise had been highlighted with potential contribution to the ongoing work by Tauw. Regarding the drafting work to be carried out the following responsibilities have been suggested:

- (a) Chapter 3, 4, 5 to be led by Tauw expert (to be confirmed);
- (b) Chapter 6 to be led by Chalongkwan Tangbanluekal;
- (c) Chapter 7, 8 10, and 11 to be led by Lee Bell;
- (d) Chapter 9 will include the compilation of case studies;
- (e) References to be compiled chapter by chapter.

28. The work will continue over the next biennium to develop draft guidance for consideration by COP-10. Immediate timelines to advance the work have been agreed as follows:

- (a) An initial call for case studies is to be posted on the Convention's website with a deadline for submission of 15 February. Case studies to be compiled and presented on the Convention's website. A follow-up request could be initiated post 2019 COP;
- (b) Reference documents compilation (matching exercise) to be conducted by 1 June 2019 and a wider review by the BAT BEP experts within three weeks (by June 22);
- (c) Drafting work to be conducted between July and Sep 2019 and the review of materials drafted and/or compiled will be conducted at the 2019 expert meeting.

29. The agreed outline of the proposed guidance is included in Annex IV to this report.

VII. Workplan for the next biennium

30. The potential dates for the 2019 expert meeting have been introduced. The meeting will be tentatively held during the week from 16 to 20 September 2019, meeting location and venue to be confirmed.

31. The experts have agreed on the following overall workplan for the ongoing review and update of the Toolkit and of the guidelines and guidance on BAT and BEP over the 2019-2020 biennium:

A. Areas of work

1. Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional POPs under Article 5 of the Stockholm Convention on Persistent Organic Pollutants (Toolkit)

32. The work on the Toolkit has been completed and the relevant information and guidance made available to Parties and others. No further work on the Toolkit is currently needed.

2. Guidelines and guidance on best available techniques and best environmental practices

(a) Guidelines and guidance on best available techniques and best environmental practices relevant to the persistent organic pollutants listed in Annex C

33. The work to update the guidelines and guidance on BAT and BEP relevant to Article 5 and Annex C of the Stockholm Convention is ongoing. Priority areas of work include the following sections: V.A. Waste incineration, V.C. Production of pulp using elemental chlorine or chemicals generating elemental chlorine, VI.A. Open burning of waste, including burning of landfill sites, VI.C. Residential combustion sources, VI.D. Fossil fuel-fired utility and industrial boilers, VI.E. Firing installations for wood and other biomass fuels, VI.F. Specific chemical production processes releasing chemicals listed in Annex C, VI.J. Textile and leather dyeing (with chloranil) and finishing (with alkaline extraction), VI.L. Smouldering of copper cables, and VI.M. Waste oil refineries.

(b) Guidance on best available techniques and best environmental practices relevant to the persistent organic pollutants listed in Annex A or B

34. The work to update the guidance on best available techniques and best environmental practices relevant to the chemicals listed in Annex A or B of the Stockholm Convention is ongoing. Priority areas of work include the updating of the guidance on best available techniques and best environmental practices for the recycling and waste disposal of articles containing polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention to address considerations for all PBDEs listed in the Convention, including for best available techniques and best environmental practices for the production and use of decabromodiphenyl ether.

(c) Sites contaminated by persistent organic pollutants

35. The work to develop guidance for identification and management of sites contaminated by persistent organic pollutants is ongoing. Priority areas of work include collection of relevant information and case studies from parties and others, in particular as it relates to management and remediation, inventory development, financial mechanisms, information relevant for developing countries, countries with economies in transition, and for developed countries, information covering a large range of scenarios and type of contamination issue e.g. pesticides, production facilities etc. and for managing multiple contaminant scenarios in single sites (e.g. covering simultaneously POPs, metals, hydrocarbons etc.), and examples of problems that can occur as well as successes.

B. Timelines

| <i>Deadline</i> | <i>Activity</i> |
|----------------------------------|---|
| | Follow-up to the ninth meeting of the Conference of the Parties: <ul style="list-style-type: none"> • Secretariat invites information submission from Parties and others on the work areas specified in the workplan • Secretariat invites expressions of interest to confirm and/or identify leads and contributors from the joint Toolkit and best available techniques (BAT) and best environmental practices (BEP) expert roster for the areas of work included in the workplan |
| May 2019 | |
| Continue throughout the biennium | Collection and compilation of information from Parties and others for consideration and evaluation by the experts at their annual meeting(s) |
| September 2019 | Secretariat compiles information submitted by Parties and others to that date and sends the compilation to the Toolkit and BAT and BEP experts by 15 September 2019 |

| <i>Deadline</i> | <i>Activity</i> |
|-----------------------|--|
| September 2019 | <p>Joint meeting of the Toolkit and BAT and BEP experts to evaluate information and develop the proposals for intersessional work, including identification of task teams, to update existing guidance and/or develop additional guidance for the areas of work included in the workplan.</p> <p>Task teams prepare draft updated guidance and/or draft new guidance on the basis of the proposals developed by the Toolkit and BAT and BEP experts at their 2019 meeting:</p> <ul style="list-style-type: none"> • Task team leads send the first drafts to the Secretariat by 31 May 2020 |
| August 2020 | <ul style="list-style-type: none"> • Secretariat makes available the first drafts for review by the Toolkit experts by 30 June 2020 • Task team leads revise the first drafts according to comments and send the revised drafts to the Secretariat by 31 July 2020 • Secretariat makes available the drafts on the Stockholm Convention website by 15 August 2020 for comments by the experts, and by Parties and others prior to 15 September 2020 |
| September 2020 | Secretariat compiles additional information submission to that date and comments from the experts and from Parties and others and sends the compilation to the Toolkit and BAT and BEP experts by 30 September 2020 |
| October/November 2020 | Joint meeting of the Toolkit and BAT and BEP experts to finalize drafts, develop conclusions and recommendations and workplan for the next biennium for consideration by the Conference of the Parties at its tenth meeting |
| January 2021 | Task teams finalize the draft guidance and task team leads send the final and/or interim drafts to the Secretariat by 15 January 2021 |
| May 2021 | Tenth meeting of the Conference of the Parties |

VIII. Conclusions and recommendations

36. The experts have agreed on the following conclusions and recommendations:

A. Inventories of unintentional POPs pursuant to Article 5 and Annex C of the Convention

37. A major revision and update of the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional POPs under Article 5 of the Stockholm Convention on Persistent Organic Pollutants² (referred to hereafter as the Toolkit) was undertaken resulting in the 2013 Toolkit edition. The Toolkit constitutes the most comprehensive available compilation of emission factors for all relevant sources of the chemicals listed in Annex C to the Convention. Since then, new nationally generated emission factors have largely confirmed the emission factors listed in the 2013 Toolkit. Therefore, no changes of the emission factors for polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF) listed in the Toolkit 2013 are needed.

38. For unintentional POPs listed in Annex C other than PCDD/PCDF, literature reviews were undertaken and emission factors for dioxin-like polychlorinated biphenyls (PCB), hexachlorobenzene (HCB) and pentachlorobenzene (PeCBz) were developed and made available in Toolkit Excel files³. For these three substances the correlation with PCDD/PCDF releases was confirmed. Concerning the formation and releases of polychlorinated naphthalenes (PCNs) it is assumed that they correlate with PCDD/PCDF releases as well. With

² <http://toolkit.pops.int/>

³

<http://chm.pops.int/Implementation/UnintentionalPOPs/ToolkitforUPOPs/ToolkitMethodology/tabid/196/Default.aspx>

regards to hexachlorobutadiene (HCBD), it was decided that there is no need to develop emission factors.

Recommendation: All Parties should be reminded to develop a full and complete PCDD/PCDF inventory as part of their Article 5 obligations under the Stockholm Convention and to submit it through Article 15 reporting. Inventories should be updated at five-year intervals as stipulated in Article 5 to evaluate the efficacy of the measures taken towards minimization or ultimate elimination of releases of unintentional POPs. These assessments should be reflected in the updated national implementation plans under Article 7.

B. Best available techniques and best environmental practices relevant to Article 5 and Annex C of the Stockholm Convention

39. A number of sections of the guidelines on best available techniques and guidance on best environmental practices relevant to Article 5 and Annex C of the Stockholm Convention⁴ have been updated to include considerations relevant to the newly listed persistent organic pollutants. The guidelines and guidance are applicable to releases of all chemicals listed in Annex C of the Convention.

Recommendation: Parties and others should be encouraged to use the guidelines and guidance when applying best available techniques and best environmental practices for these chemicals, provide feedback on the guidelines' and guidance's usefulness, and contribute to the finalization of the remaining sections of the guidelines and guidance.

C. Best available techniques and best environmental practices relevant to Annex A and B of the Stockholm Convention

40. A draft guidance on best available techniques and best environmental practices for the production and use of pentachlorophenol listed with specific exemption in Annex A of the Stockholm Convention has been developed.

Recommendation: Parties and others should be encouraged to consider the draft guidance when applying best available techniques and best environmental practices for this chemical, provide feedback on the guidance's usefulness, and contribute to its finalization.

D. Process for review and update

41. Through the process for updating the joint Toolkit and best available techniques and best environmental practices expert roster, the limited expertise available to the process has become evident.

Recommendation: Parties and others with the relevant expertise should nominate experts and participate actively in the review and update process.

42. Collaboration and exchange of information with the appropriate bodies of the Basel Convention on waste-related aspects and with the Persistent Organic Pollutants Review Committee on alternatives to persistent organic pollutants, as well as with other processes that generate guidance and recommendations relevant to the work on the Toolkit and on best available techniques and best environmental practices, is important to ensure harmonization of activities.

Recommendation: The work of the experts on the Toolkit and on best available techniques and best environmental practices and that of the other relevant technical and scientific bodies and other relevant processes under the Basel and Stockholm Conventions should be conducted in close consultation.

IX. Other matters

9.1. Update of the joint Toolkit and BAT and BEP expert roster

43. The Secretariat informed of the outcomes of the process to update the expert roster. The process had been initiated further to decision SC-8/6, by which the COP invited Parties and others to participate actively in the review and updating of the Toolkit and of the

⁴ <http://chm.pops.int/Implementation/BATandBEP/Guidance/Overview/tabid/5121/Default.aspx>.

guidelines and guidance on BAT and BEP and to confirm the availability of the current experts and/or nominate new experts in the joint expert roster. The Secretariat communicated with all the Parties that had nominated experts to the joint expert roster to confirm their continued involvement or nominate new experts. Overall, as of 30 September 2018, from the initially 109 experts listed in the joint expert roster, 54 had been either confirmed, newly nominated, or, in the absence of an official confirmation, known to be actively involved in the ongoing work. In the cases where the experts have not been confirmed through the official channels but their active involvement is known, the Secretariat will follow-up on the initial communication to obtain their official confirmation.

44. The conclusion of the limited expertise available to the process has become evident through the process of updating the joint expert roster. It was recommended that Parties and others with the relevant expertise be further encouraged to nominate experts and participate actively in the review and update process.

9.2. Usability and user-friendliness of guidelines and guidance

45. Considerable time, effort and funds have been invested in the development of existing guidelines and guidance, including on enhancing user-friendliness through thorough consideration of the means of presenting the information according to the level of technical details e.g. by using modular approaches. The guidelines and guidance are useful and informative documents, however, their use and implementation by Parties remain limited. While the guidance documents are provided as orientation to Parties to assist in the implementation of the Convention, their actual use should be further encouraged.

46. Further, a number of guidance documents on similar topics are developed through separate processes (e.g. NIP inventory guidance, POPs alternatives, BAT and BEP) and can sometimes present conflicting information. The need to cooperate with ongoing processes which assess issues that are of relevance to the work on the Toolkit and on BAT and BEP (e.g. technical guidelines under the Basel Convention, GMP monitoring guidance, NIP guidance) has been highlighted as essential to ensure that information is communicated in a consistent and harmonized way.

X. Closure of the meeting

47. The Secretariat thanked the experts for their active participation and contribution to the meeting and commitments for continued involvement in the future work. The meeting was closed on Thursday 11 October 2018 at 13:00.

Annex I to the report: List of Participants

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Annex II to the report: Agenda and Programme

I. Agenda

1. Opening;
2. Introduction and context:
 - a. Overview of the outcomes of the 2017-2018 intersessional period;
3. Organization of work;
4. Toolkit for Identification and Quantification of Releases of Dioxin, Furans and Other Unintentional Persistent Organic Pollutants:
 - a. Status of the work and progress report to COP-9;
5. Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C:
 - a. Status of the work and progress report to COP-9;
6. Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B to the Stockholm Convention:
 - a. Draft guidance on BAT and BEP for pentachlorophenol (PCP);
 - b. Proposal for consolidated guidance on BAT and BEP for polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention;
 - c. New information relevant to BAT and BEP for the newly listed POPs;
7. Contaminated sites;
8. Workplan for the next biennium;
9. Conclusions and recommendations to COP-9;
10. Other matters:
 - a. Update of the joint Toolkit and BAT and BEP expert roster;
 - b. Usability / user friendliness of guidance;
11. Closure of the meeting.

Expected outputs

- Agreed guidance documents / progress reports for submission to COP-9;
- Workplan for the next biennium;
- Conclusions and recommendations on the Toolkit and on BAT and BEP.

II. Programme

| Tuesday 9 October 2018 | | |
|-------------------------------|--|--|
| 09:30-10:30 | Opening of the meeting <ul style="list-style-type: none"> - Welcome and introduction of the participants; - Adoption of meeting agenda and programme; - Meeting objectives and organizational matters; Introduction and context: <ul style="list-style-type: none"> - Overview of the 2017-2018 intersessional period; Other matters: <ul style="list-style-type: none"> - Update of the joint Toolkit and BAT and BEP expert roster | Secretariat All participants Secretariat Secretariat |
| <i>10:30-11:00</i> | <i>Coffee break</i> | |
| 11:00-12:30 | Toolkit for Identification and Quantification of Releases of Dioxin, Furans and Other Unintentional Persistent Organic Pollutants: <ul style="list-style-type: none"> - Status of the work for the review and update; Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C: <ul style="list-style-type: none"> - Status of the work for the review and update; Discussion | Heidi Fiedler, Gang Yu Secretariat All |
| <i>12:30-14:00</i> | <i>Lunch break</i> | |
| 14:00-15:30 | Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B to the Stockholm Convention: <ul style="list-style-type: none"> - Draft guidance on BAT and BEP for pentachlorophenol (PCP); - Proposal for consolidated guidance on BAT and BEP for polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention; - New information relevant to BAT and BEP for the newly listed POPs: <ul style="list-style-type: none"> - Identification and screening – information under assessment by the GMP; - NIP inventory guidance development; Discussion | Secretariat Secretariat Secretariat, Roland Weber All |
| <i>15:30-16:00</i> | <i>Coffee break</i> | |
| 16:00-17:30 | Contaminated sites Other matters: <ul style="list-style-type: none"> - Usability / user friendliness of guidance; Discussion | Lee Bell All All |
| | | |

| Wednesday 10 October 2018 | | |
|----------------------------------|---|--------------------------------|
| 9:00-10:30 | Group work to develop progress report to COP-9: <ul style="list-style-type: none"> - Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B to the Stockholm Convention: Draft guidance on PCP; | Two working groups in parallel |
| <i>10:30-11:00</i> | <i>Coffee break</i> | |
| 11:00-12:30 | Group work to develop progress report to COP-9: <ul style="list-style-type: none"> - Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B to the Stockholm Convention: Draft guidance on PCP; | Two working groups in parallel |
| <i>12:30-14:00</i> | <i>Lunch break</i> | |
| 14:00-15:30 | Group work to develop progress report to COP-9: <ul style="list-style-type: none"> - Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Guidance on BAT and BEP relevant to the chemicals listed in Annex A or B to the Stockholm Convention: Proposal for consolidated guidance PBDEs; | Two working groups in parallel |
| <i>15:30-16:00</i> | <i>Coffee break</i> | |
| 16:00-17:30 | Group work to develop progress report to COP-9: <ul style="list-style-type: none"> - Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Contaminated sites; | Two working groups in parallel |
| Thursday 11 October 2018 | | |
| 9:00-10:30 | Group work to develop progress report to COP-9: <ul style="list-style-type: none"> - Thematic areas to be decided depending on progress | Two working groups in parallel |
| <i>10:30-11:00</i> | <i>Coffee break</i> | |
| 11:00-12:30 | Outcomes of group work: <i>Presentations of working group outcomes</i> <ul style="list-style-type: none"> - Toolkit and Guidelines and Guidance on BAT and BEP relevant to Article 5 and Annex C; - Draft guidance on BAT and BEP for PCP; - Proposal for consolidated guidance on BAT and BEP for PBDEs; - Contaminated sites; | Working group leads |
| <i>12:30-14:00</i> | <i>Lunch break</i> | |
| 14:00-16:00 | Presentation of outcomes of 2017-2018 intersessional work at COP-9 Conclusions and recommendations to COP-9 | All |

| | | |
|--------------|---|-----------------------|
| 16:00 | <p>Workplan for the next biennium</p> <p>Closure of the meeting</p> | <p>All</p> <p>All</p> |
|--------------|---|-----------------------|

Annex III to the report: Outline of consolidated guidance on best available techniques and best environmental practices for polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention

PART I General Information

[contains introductory / background information as available in existing guidance Chapters 1 and 2 – to be supplemented with new info on DecaBDE – in particular new section on alternatives]

Chapter 1. Introduction

- 1.1. Purpose
- 1.2. Structure of the guidance document
- 1.3. Relationship to the Basel Convention
- 1.4. Relationship to other environmental concerns

Chapter 2. Background information on POP-PBDEs

- 2.1. POP-PBDEs listed in the Convention
- 2.2. Production of and use of PBDEs
 - 2.2.1. Former production and uses of c-PentaBDE and c-OctaBDE
 - 2.2.2. Production of uses of c-DecaBDE under specific exemptions
- 2.3. Risks associated with POP-PBDEs
- 2.4. Sources and pathways of POP-PBDEs discharges into environment

Chapter 3. Consideration of alternatives to POP-PBDEs

Part II BAT and BEP applicable to all POP-PBDEs

[contains general BAT BEP information as available in existing guidance Chapter 3 – to be supplemented with general BAT BEP guidance for manufacturing processes / downstream uses of DecaBDE / issue of screening / identification will also need amendment]

Chapter 4. General principles and guidance on BAT and BEP for managing POP-PBDEs

- 4.1. Environmental management systems
 - 4.1.1. Specific education and training of employees
- 4.2. General BAT and BEP measures applicable to handling all chemicals (manufacturing process and downstream uses)
- 4.3. Waste management considerations
- 4.4. Screening and monitoring of POP-PBDEs in products and articles

Part III BAT and BEP for the production and use of c-DecaBDE for specific exemptions

[new section containing information on BAT BEP for each exempted application of DecaBDE]

Chapter 5. Specific guidance on BAT and BEP for managing c-DecaBDE under specific exemptions uses and applications

- 5.1. Specific Exemption Application 1
 - 5.1.1. Background (process description)
 - 5.1.2. BAT and BEP (incl. availability of alternatives)
- 5.2. Specific Exemption Application 2 and so on...
 - 5.2.1. Background (process description)
 - 5.2.2. BAT and BEP (incl. availability of alternatives)

Part IV BAT and BEP for recycling of articles containing c-Penta or c-OctaBDE

[contains Chapters 4, 5, 6 from existing guidance]

Chapter 6. C-Penta or c-OctaBDE containing plastic in EEE/WEE

- 6.1. Reuse of EEE
- 6.2. Material recycling considerations for plastics containing c-Penta or c-OctaBDE
 - 6.2.1. Types and composition of plastics
- 6.3. Technologies to separate c-Penta or c-OctaBDE containing plastic
 - 6.3.1. Background information
 - 6.3.2. Manual dismantling approaches
 - 6.3.3. Individual screening techniques to separate possibly c-Penta or c-OctaBDE - containing bulk and shredded plastics
 - 6.3.4. Combinations of technologies for producing marketable products
 - 6.3.5. Comparison of technologies to separate polymer streams
 - 6.3.6. Full-scale plants to separate WEEE and BDE-containing plastics
 - 6.3.7. Energy recovery and waste management of separated BDE plastic
- 6.4. BAT/BEP for processing technologies of BDE containing plastic
 - 6.4.1. Background and exposure risks
 - 6.4.2. Processing technologies and exposure and release control
 - 6.4.3. Controlling products produced from BDE containing plastic
 - 6.4.4. Labelling of BDE containing plastic fractions and articles

Chapter 7. C-Penta or c-OctaBDE containing materials in the transport sector

- 7.1. Reuse of vehicles containing c-Penta or c-OctaBDE
- 7.2. Treatment and recycling of end-of-life vehicles
 - 7.2.1. Dismantling and depollution of the vehicle
 - 7.2.2. Shredder plants
 - 7.2.3. Recycling by improved depollution and post-shredding techniques
- 7.3. Energy recovery and disposal of ASR and other ELV residues
 - 7.3.1. Energy recovery
 - 7.3.2. Disposal of ASR
- 7.4. Developing country considerations

Chapter 8. C-Penta or c-OctaBDE containing PUR foam

- 8.1. Reuse of furniture and mattresses possibly impacted by BDEs
- 8.2. Recycling/recovery of PUR foam
 - 8.2.1. Rebond: Recycling PUR foam with phase-out of c-PentaBDE
 - 8.2.2. Material recovery from mattresses
 - 8.2.3. Regrinding
 - 8.2.4. Chemical recovery (glycolysis)
- 8.3. Labelling of articles produced from recycled PUR foams
- 8.4. Other materials possibly impacted by BDEs

Part V Other considerations for BAT and BEP for end of life treatment

[contains Chapters 7 and 8 from existing guidance]

Chapter 9. Energy/material recovery from POP-PBDEs containing material

- 9.1. General remarks on thermal treatment of POP-PBDE-containing materials
 - 9.1.1. Calorific value and halogen content of POP-PBDE-containing materials
 - 9.1.2. Monitoring of PBDD/PBDF and PXDD/PXDF release
 - 9.1.3. Considerations on corrosion caused by bromine/HBr

- 9.1.4. Considerations for removal of HBr and bromine in flue gas treatments
- 9.2. Energy recovery of POP-PBDE-containing materials in incinerators
 - 9.2.1. Co-incineration of plastics from WEEE
 - 9.2.2. Co-incineration of ASR in municipal solid waste incinerators
 - 9.2.3. Recovery of metals
 - 9.2.4. Developing country considerations
- 9.3. Recovery in cement kilns
 - 9.3.1. General considerations- use
 - 9.3.2. Monitoring considerations
 - 9.3.3. Case study
 - 9.3.4. Developing country considerations
- 9.4. Recovery in metal industries
 - 9.4.1. Copper smelters and integrated smelters-refineries
 - 9.4.2. Material recovery and energy recovery in electric arc furnaces
 - 9.4.3. Feedstock recycling of POP-PBDE polymers in primary steel industry
 - 9.4.4. POP-PBDE-containing materials in secondary aluminium industries
 - 9.4.5. Antimony smelters recycling WEEE plastics
 - 9.4.6. Developing country considerations

Chapter 10. Disposal of POP-PBDE-containing wastes to landfills

- 10.1. Drawbacks of landfilling of POP-PBDE-containing wastes
- 10.2. Sanitary landfill for disposal POP-PBDE-containing wastes
- 10.3. Long-term aftercare considerations for sanitary landfills

References

Annexes

Annex 1: General BAT/BEP considerations for specific sectors

Annex 2: Disposal of POP-PBDE-containing wastes to landfills

Annex 3: Emerging technologies

Annex IV to the report: Outline of guidance on POPs contaminated sites

Preface

Abbreviations

1. Introduction

- 1.1. Contaminated sites and the Stockholm Convention
- 1.2. Purpose of the Guidance
- 1.3. Structure of the Guidance

2. Background information on POPs contaminated sites

- 2.1. POPs listed under the Stockholm Convention
- 2.2. Activities involving POPs that may generate contaminated sites
- 2.3. Review of Legislation and Policy for contaminated sites
 - 2.3.1. Environmental threshold levels for POPs
 - 2.3.2. Land acquisition
 - 2.3.3. Inventory initiatives

3. How to conduct contaminated site identification and develop inventories

- 3.1. Site Identification and assessment
 - 3.1.1 Key actors for identification, characterization, remediation and post monitoring activities
- 3.2. Inventory development – a step by step approach
- 3.3. Best practice in inventory development -a case study.

4. Site investigation

- 4.1 Preliminary Site Investigation (PSI)
 - 4.1.1 Investigation goals and planning
 - 4.1.2 Desktop study
 - 4.1.3 Site Reconnaissance
 - 4.1.4. Emergency Response
- 4.2 Detailed Site investigation (DSI)
 - 4.2.1 Investigation goals and planning
 - 4.2.2 Site Screening
- 4.3 Geotechnical investigation
 - 4.3.1 Geology
 - 4.3.2 Hydrogeology
- 4.4 Sampling and field measurements
 - 4.4.1 Soil and water sampling
 - 4.4.2 Air sampling
 - 4.4.3 Biota sampling and bioassay
 - 4.4.4 Storage, preparation and laboratory analysis

5 Site Characterisation

- 5.1 Conceptual Site Models (CSM)
- 5.2 Approaches and methods

6 Risk Assessment

- 6.1 Objectives of risk assessment
- 6.2 Tier 1 assessment (screening)
- 6.3 Tier 2 assessment (intermediate)

6.4 Tier 3 Site-specific Assessment

7 Management and Remediation Principles and Approaches

7.1 Management

7.1.1 Isolation

7.1.2 Monitoring

7.1.3 Land use changes

7.2 Remediation: Principles and Approaches

7.2.1 'Fit for use' approach

7.2.2 Sustainable remediation

7.2.3 Ecological revitalization

7.2.4 Validation and post remediation monitoring

8 Remediation technology and techniques

8.1 Point source and diffuse contamination

8.2 Proven POPs contaminated soil remedial techniques

8.2.1 Excavation and on-site (in-situ) treatment

8.2.2 Excavation and off-site treatment (ex situ)

8.2.3 POPs waste destruction technologies

8.2.4 In-situ containment

8.3 Emerging POPs contaminated soil remedial techniques

8.4 Proven Treatment techniques for water contaminated with POPs

8.5 Emerging water treatment techniques

9 Case Studies in POPs contaminated site management.

9.1 Case Study 1 Remedial actions and outcomes

9.2 Case Study 2 Remedial actions and outcomes

10 Occupational and Community Safety and Health Management for Contaminated Sites activities

10.1 Overview

10.2 Duty of Care and Social Responsibility

10.3 Risk Registers

10.4 Information and Training

10.5 Supervision

10.6 General Storage and transport controls for contaminants

10.7 Transport of POPs contaminated material from contaminated sites.

10.8 Workplace amenities and first aid facilities

10.9 Exposure monitoring

10.10 Health surveillance programs

11 POPs Contaminated sites: Engaging the Public.

11.1 Guidance for Site-Specific Stakeholder Engagement

11.2 Stakeholder Engagement Implementation

11.3 Stakeholder Engagement Evaluation and Reporting

11.4 Financial mechanisms for management and remediation

12 References

Appendices (*if appropriate*)
