POPRC-18 FINAL

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Summary of the Eighteenth Meeting of the Persistent Organic Pollutants Review Committee: 26-30 September 2022

The Persistent Organic Pollutants Review Committee (POPRC) is an expert body that informs global efforts to protect human health and the environment from chemicals known as persistent organic pollutants (POPs): chemicals that are toxic, bioaccumulate, persist in the environment, and can travel to remote areas. Each year the POPRC meets to evaluate these chemicals and make recommendations to the Conference of the Parties (COP) to the Stockholm Convention on POPs.

At its 2022 meeting, the POPRC, through its expert reviews, advanced all but one of the chemicals under consideration to their respective next stage of the review process. The Committee agreed to recommend two chemicals to the Stockholm Convention: Dechlorane Plus, a flame retardant, and UV-328, an ultraviolet filter used in plastics. The recommendations for both chemicals will be forwarded to the COP, which will consider whether to include them in Annex A of the Convention, which eliminates production and use. In both cases, the Committee identified applications where there is need for some ongoing uses given a lack of available safe alternatives. These include the use of both chemicals in spare parts of vehicles, among others.

The POPRC deferred its consideration of the draft risk profile for chlorpyrifos. Some members did not agree that this pesticide would, as a result of its long-range environmental transport (LRET), lead to adverse effects. For the other draft risk profiles, the Committee agreed that global action was warranted, because the chemicals were likely to cause adverse effects due to their LRET. These two industrial chemicals are: long-chain perfluorocarboxylic acids, their salts and related compounds (LC-PFCAs), and chlorinated paraffins with carbon chain lengths in the range C14–17 and chlorination levels at or exceeding 45% chlorine by weight. The POPRC will now draft a risk management evaluation (RME) on these two substances for consideration at its next meeting.

POPRC-18 convened in a hybrid format from 26-30 September 2022, with most participants engaging in person in Rome, Italy. Thirty of the 31 POPRC members participated in person or virtually. In total, 104 observers participated, including 64 representatives from 28 governments and 38 representatives from 23 civil society and industry representatives. Two representatives represented their respective international organizations.

POPRC members participate in their expert capacity and are identified as individuals, rather than countries, throughout this report. The POPRC members are: Irina Talamoni (Argentina); Artak Khachatryan (Armenia); Valentina Bertato (Belgium); Andrew Beyak (Canada); Jianxin Hu (China); Boris Avila Taborda (Colombia); Katarína Řiháčková (Czech Republic); Jean Paul Otamonga (Democratic Republic of the Congo); Mario Rodas (Ecuador); Salah Soliman (Egypt); Thabile Ndlovu (Eswatini); Mehari Wondmagegn Taye (Ethiopia); Timo Seppälä (Finland); Lamin Jaiteh (The Gambia); Caren Rauert (Germany); Suresh Lochan Amichand (Guyana); Ved Prakash Mishra (India); Witta Kartika Restu (Indonesia); Kazuhide Kimbara (Japan); Mohammed Khashashneh (Jordan); John Mumbo (Kenya); Gotfried Uiseb (Namibia); Martien Janssen (Netherlands); Peter Dawson (New Zealand); Christina Tolfsen (Norway); Magdalena Frydrych (Poland); Hyo-Bang Moon (Republic of Korea); Bondi Nyuma Gevao (Sierra Leone); Doaa F.Y Abdallah (State of Palestine); Victorine Augustine Pinas (Suriname); and Chalongkwan Tangbanluekal (Thailand).

A Brief History of the POPRC

During the 1960s and 1970s, the use of chemicals and pesticides in industry and agriculture increased dramatically. A category of chemicals known as POPs attracted international attention due to a growing body of scientific evidence indicating that exposure to very low doses of POPs can lead to cancer, damage to the central and peripheral nervous systems, diseases of the immune system,

In this Issue

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reproductive disorders, and interference with normal infant and child development.

POPs are chemical substances that persist in the environment, bioaccumulate in living organisms, and can have adverse effects on human health and the environment. POPs are capable of LRET to regions where they have never been used or produced, and consequently pose threats to the global environment. Given these characteristics, the international community called for urgent global action to reduce and eliminate their release.

The UN Environment Programme's Governing Council launched negotiations in February 1997. The Stockholm Convention was adopted in May 2001, entered into force on 17 May 2004, and currently has 186 parties. The Convention lists chemicals in three annexes: Annex A lists chemicals to be eliminated; Annex B lists chemicals to be restricted; and Annex C calls for minimizing unintentional production and release of listed chemicals. When adopted in 2001, 12 POPs were listed in these annexes, including:

- pesticides: aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, and toxaphene;
- industrial chemicals: hexachlorobenzene and polychlorinated biphenyls (PCBs); and
- unintentionally produced POPs: dioxins and furans.

The role of the POPRC: The Stockholm Convention specifies a procedure to identify and list additional POPs. At the first meeting of the Conference of the Parties (COP-1), held in Punta del Este, Uruguay, from 2-6 May 2005, the POPRC was established to consider additional substances nominated for listing under the Convention.

The Committee is comprised of 31 experts nominated by parties from the five UN regional groups and reviews nominated chemicals in three stages. The Committee first determines whether the substance fulfills the screening criteria detailed in Annex D of the Convention, relating to the chemical's persistence, bioaccumulation, potential for LRET, and adverse effects on human health or the environment. If a substance is deemed to fulfil these requirements, the Committee then drafts a risk profile according to Annex E to evaluate whether the substance is likely, as a result of its LRET, to lead to significant adverse human health and/or environmental effects and therefore warrants global action.

Finally, if the POPRC finds that global action is warranted, it develops a risk management evaluation according to Annex F, reflecting socio-economic considerations associated with possible control measures. Based on this, the POPRC decides whether to recommend that the COP list the substance under Annexes A, B, and/or C to the Convention.

The POPRC has met annually since its establishment.

Chemicals Reviewed in the POPRC Process

To date, the COP has listed all 19 POPs recommended by the POPRC. For most parties, the amendment listing a new POP enters into force automatically within a set time frame after the COP listing. However, parties can opt out of an amendment and some parties have submitted notification upon ratification that they must opt-in to each amendment.

POPRC-1 to 4: The first four meetings of the POPRC met between 2005 and 2008. During this time, the POPRC recommended that the COP consider listing the following POPs under Annexes A, B, and/or C: alpha and beta hexachlorocyclohexane; chlordecone; commercial octabromodiphenyl ether (c-octaBDE); commercial pentabromodiphenyl ether (c-pentaBDE); hexabromobiphenyl (HBB); lindane; pentachlorobenzene (PeCB); and perfluorooctane sulfonic acid (PFOS), its salts, and perfluorooctane sulfonyl fluoride (PFOSF). At POPRC-2, the Committee also agreed to create a draft risk profile for short-chain chlorinated paraffins (SCCPs), an issue that would return to the POPRC's agenda several times before the Committee decided to recommend SCCPs for listing at its twelfth meeting. At POPRC-4, the Committee evaluated a proposal to list endosulfan under the Convention and agreed, by majority vote, that it met the Annex D screening criteria.

POPRC-5 to 9: These POPRC meetings convened between 2009 and 2013. During this time, the POPRC recommended that the COP consider listing the following POPs under Annexes A and/or C: hexabromocyclododecane (HBCD), with specific exemptions; chlorinated naphthalenes (CNs), and hexachlorobutadiene (HCBD). The POPRC recommended listing endosulfan, by a majority vote at both the draft risk profile and risk management evaluation stages.

At these meetings, the commercial mixture of decabromodiphenyl ether (c-decaBDE) advanced to the draft risk profile stage. Pentachlorophenol (PCP), its salts and esters advanced to the draft risk management evaluation stage.

At POPRC-7, for the first time, the Committee considered POPs alternatives, with assessment of alternatives to: PFOS in open applications, DDT, and endosulfan.

POPRC-10 to 14: These POPRC meetings were convened between 2014 and 2018. During this time, the POPRC recommended that the COP consider listing the following POPs in Annexes A and/or C: dicofol; decaBDE; HCBD; SCCPs; perfluorooctanoic acid (PFOA), its salts, and PFOA-related compounds;

In 2018, the Committee adopted the risk profile for perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds.

POPRC-15: At its 2019 meeting, the POPRC recommended listing PFHxS, its salts, and related compounds in Annex A of the Convention without specific exemptions. The Committee also concluded that proposals to list methoxychlor and Dechlorane Plus and its syn- and anti-isomers satisfied the Annex D screening criteria and should move forward to the draft risk profile stage.

POPRC-16: This meeting was held online during the Coronavirus pandemic in 2021. Delegates agreed UV-328 met the Annex D criteria, although questions remained about whether transport via plastics in the ocean and seabirds represents a viable mechanism for LRET. As a result of this question, the POPRC agreed to prepare a guidance document on LRET. The POPRC also agreed that methoxychlor met Annex E criteria, but debate about the evidence base for adverse effects of Dechlorane Plus meant that the chemical remained at the Annex E stage.

POPRC-17: This meeting was held in a hybrid format, with in-person participation taking place in Geneva in January 2022. The POPRC agreed to recommend listing methoxychlor in Annex A without specific exemptions. It also agreed that Dechlorane Plus and UV-328 warrant global action, due to the potential for adverse effects from their LRET. POPRC-17 also agreed that the following chemicals met the Annex D criteria: chlorpyrifos; chlorinated paraffins with carbon chain lengths in the range C14-17 and chlorination levels at or exceeding 45% chlorine by weight; and long chain perfluorocarboxylic acids, their salts and related compounds.

POPRC-18 Report

On Monday, POPRC-18 Chair Peter Dawson opened the meeting, noting the COVID-19 pandemic had disrupted the usual scheduling of meetings and welcomed participants back to Rome. He paid tribute to Mark Trewhitt who passed away in 2022. He noted the

full agenda and urged focusing on the science in a balanced and fair manner.

He reported that Svitlana Sukhorebra's term as Vice-Chair had finished and proposed, and members agreed, to appoint Magdalena Frydrych as her replacement, and they agreed she would also serve as Rapporteur.

Rolph Payet, Executive Secretary of the Basel, Rotterdam, and Stockholm Conventions (BRS), lauded the Stockholm Convention as a dynamic treaty. Underlining that new POPs are continually being added to the Convention annexes, he underscored that the science-based approach is working. He stated that while there is a full agenda, the work at POPRC-18 will provide COP-11 with the scientific basis needed for sound decision-making.

He stated many of the chemicals under review or listed are used in plastics and underscored the Convention's work with the ongoing negotiations for a new plastics treaty. Citing the triple planetary crisis of climate change, biodiversity loss and pollution, Payet highlighted the Committee's contribution to realize a pollution-free planet.

The POPRC adopted its agenda (UNEP/POPS/POPRC.18/1) with members agreeing to discuss the format of the draft risk profiles under other matters, as requested by Hu. The Committee adopted its organization of work and schedule (UNEP/POPS/POPRC.18/INF/1 and 2). The POPRC welcomed new members as set out in the rotation of membership (UNEP/POPS/POPRC.18/INF/3).

Review of the Outcomes of Stockholm Convention COP-10

The Secretariat introduced this agenda item (UNEP/POPS/POPRC.18/INF/4), noting the face-to-face segment took place in June 2022 in Geneva, Switzerland, with an online segment having taken place in July 2021 to adopt a set of prioritized decisions allowing the continuation of the work of the Convention during the pandemic. She noted several decisions had been adopted at the face-to-face segment, including a decision to list the production and use of perfluorohexane sulfonic acid (PFHxS), its salts, and related compounds in Annex A without exemptions. Highlights included, *inter alia*: on exemptions, the COP took note of the report of the review related to specific substances; the effectiveness evaluation that will take place at COP-11 in 2023; and a request to the Secretariat to cooperate and coordinate to strengthen the science-policy interface.

She noted the Rotterdam Convention's Chemical Review Committee (CRC) met just prior to POPRC-18 and had finalized two draft decision guidance documents on iprodione and terbufos for consideration at the next COP, with two substances to be addressed intersessionally.

The Committee took note of the information presented by the Secretariat.

Technical Work

Consideration of Draft Risk Management Evaluations: Dechlorane Plus: On Monday, the Secretariat introduced the draft RME (UNEP/POPS/POPRC.18/2 and Add.1), additional information (INF/5), comments and responses (INF/6), and further information on adverse effects (INF/23).

The Chair of the intersessional working group, Victorine Pinas, noted that the group arrived at a recommendation to list Dechlorane Plus in Annex A with or without time-limited exemptions for production and use in:

- legacy spare parts for motor vehicles, industrial machines, marine-, garden-, and outdoor-power equipment;
- aerospace and defence applications; and
- medical imaging and radiotherapy devices.

She also noted that the exemptions could be for the last two applications only.

Tolfsen, who drafted the document, reported that Dechlorane Plus is widely detected in the environment, and, although there were originally two known manufacturers, today there is only one in China. She noted that China intends to ban the production, use, import, and export of Dechlorane Plus in 2026. She reported that it is used as a flame retardant, extreme pressure additive, and that motor vehicles account for 70-90% of the total global use volume. She said nearly 90% of emissions are from manufacturing and waste dismantling. Noting limited information on alternatives, she stated that different alternatives will likely have to be identified for each use.

Seppälä queried if the emissions from the manufacturing sector were from manufacturing Dechlorane Plus itself or the manufacture of articles that use it. If the former, he suggested the best management option is to work with the one remaining production facility. Recalling previous experience with decabromodiphenyl ether (decaBDE), which also included a specific exemption for parts in legacy vehicles, he wondered if the Committee should specify the appropriate time period for the exemption.

Bertato called for a clear, specific definition of the exemptions. Tangbanluekal called for careful consideration of this exemption, noting the need to repair vehicles.

Janssen noted previous experience with labelling and asked if there were any studies on its effectiveness. He also asked for a recommendation on the appropriate time period for an exemption.

The International Pollutants Elimination Network (IPEN) and Alaska Community Action on Toxics (ACAT) supported listing without exemptions, stressing that, without international regulation, use of Dechlorane Plus is likely to increase. She supported the use of a labelling initiative, saying there have been high concentrations detected in cereals in China and the US. She also underscored the effect of Dechlorane Plus on human development.

An observer from Canada noted the wide use of Dechlorane Plus and stated that they intend to ban its use and sale. She said they are aware that there may be some continued uses and looks forward to discussion in the contact group.

An observer from the Russian Federation suggested that the draft risk management data is imprecise and called for this to be addressed.

An observer from the US reiterated that it is up to the COP to decide whether to take up a recommendation from the POPRC and suggested that listing under Annex B, with defined acceptable purposes, may be more suitable.

An observer from China reported that its production of Dechlorane Plus will cease in 2026.

An observer from the UK noted a fish toxicity test had been completed and it may suggest changes to the RME to reflect the final outcome of the study.

An observer from Japan said there is a need for exemption for legacy spare parts, and noted it has more information available following the outcomes of the pre-meetings held on 14 September 2022.

Tolfsen responded that the contact group can work with the text to clarify alternatives even further as new information is always forthcoming. She said the information must be seen in the context of the risk profile, underscoring a need to further narrow down the exemptions. She suggested that since China will ban the production and use from 2026, which implies Dechlorane Plus will

no longer be available on the global market after this date unless there are stockpiles, exemptions may not be needed beyond this date. On labelling, she noted there are other means of identification throughout the life cycle of the products.

A contact group, chaired by Victorine Pinas, met Monday through Thursday.

On Friday, Pinas introduced the revised draft risk management evaluation (UNEP/POPS/POPRC.18/CRP.15) and the draft decision (CRP.8). Tolfsen stated that she had additional information regarding space applications and asked to include a footnote in the RME clarifying this. Chair Dawson noted that the footnote will also be included in the draft decision. A small group met to consider this additional text.

In the afternoon, Pinas reported that a small group had clarified how to describe space applications in the exemption, citing that it includes, among others, items such as satellites, probes, and heat insulating materials for rocket motors. The agreed text was included in both the RME and the draft decision, which were adopted as amended.

Final Decision: In its decision (UNEP/POPS/POPRC.18/CRP.8), the POPRC, *inter alia*, adopts the RME. It also decides to recommend to the COP that it consider listing Dechlorane Plus in Annex A to the Convention with specific exemptions for production and use for the following: aerospace, space and defence applications, and medical imaging and radiotherapy devices/installations, as well as replacement parts for, and repair of, articles in the following applications until the end of the service life of the articles or 2044, whichever comes earlier:

- aerospace;
- space;
- defence;
- motor vehicles;
- stationary industrial machines for use in agriculture, forestry, and construction;
- marine, garden, forestry, and outdoor power equipment;
- medical and in-vitro diagnostic devices;
- medical imaging and radiotherapy devices/installations; and
- instruments for analysis, measurement, control, monitoring, testing, production and inspection.

For replacement parts for aerospace, space, defence, and motor vehicles, footnotes further specify examples of the types of parts exempted.

UV-328: On Monday, the Secretariat introduced the item (UNEP/POPS/POPRC.18/3, 3/Add.1 and INF/7). Andreas Buser (Switzerland) presented the draft RME.

Buser noted that UV-328, an absorber of ultraviolet light, has been produced for half a century in quantities exceeding 1000 tonnes per year globally. He explained it is used in a variety of applications and products to protect various surfaces against discoloration and weathering under sunlight, notably in different types of plastics and in the automotive industry.

He further noted that UV-328 is released during all life-cycle stages: before and after incorporation in articles, and during use, disposal and end-of-life treatment of the articles. He flagged plastic litter, liquids, textiles, and industrial releases in sewage sludge as relevant sources to the environment. Considering these releases, he concluded that the most effective measure would be to list UV-328 under Annex A.

Buser outlined challenges some sectors might face in phasing out UV-328, especially concerning the supply of spare parts for legacy motor vehicles and industrial machines. He warned that alternatives need to be selected carefully to avoid regrettable substitutions. He said that, should specific exemptions be made available, they should be time-limited and as narrow and specific as possible to avoid unnecessary exposure.

He highlighted that UV-328 has been subject to control action in the EU and some other countries, and underscored that in the EU no applications had been received for continued use after the 2023 sunset date. He did note that the UK had recently received an application for a highly specific continued use.

He added that the recycling of UV-328-containing plastic would have a high potential to reintroduce UV-328 into items, noting that current technology may not be able to efficiently identify and separate UV-328-containing plastic in the waste stream.

Janssen invited stakeholders to come up with possible and feasible solutions to the problem of sorting UV-328-containing waste. He queried whether a time-limited exemption could account for the time span during which cars and airplanes may typically be used and require spare parts.

Hu underscored that among the identified alternatives there are many potential POPs and stressed avoiding creating a situation where the POPRC would need to phase out the substitute at a later date.

Bertato pointed to similarities with the discussions of exemptions in the draft RME on Dechlorane Plus, and called for specificity in defining potential exemptions. Tolfsen stressed clarifying terms used in the document to achieve a common understanding of the terms and scope of the proposed listing.

IPEN stressed the need to list UV-328 in Annex A without exemptions, given that UV-328 is released at all stages of its lifecycle and any continued use would lead to further adverse effects on human health and the environment. She agreed the most effective path would be listing UV-328 in Annex A without exemptions.

The observer from the US noted that since some of the spare parts in question may be produced on demand, an exemption was necessary. She also highlighted that, while the document mentions critical or essential uses, the Convention does not require exemptions to be critical or essential to be acceptable. Bertato queried if motor vehicle parts are also made on demand.

An observer from the Russian Federation noted the risks of UV-328 are linked to microplastics and expressed hope that the work carried out to ban microplastics will be continued. She called for careful study and consideration of alternatives to avoid regrettable substitutions.

An observer from Japan supported exemptions for spare parts for legacy motor vehicles, industrial machines, and electric/electronic social uses, and invited participants to a side event on the question.

An observer from Saudi Arabia urged caution in considering alternatives to ensure substitutes are both effective and not dangerous.

An observer from Ghana noted listing UV-328 under Annex A will help inform the future convention on plastic pollution and urged caution in proceeding with exemptions.

Noting that UV-328 is a trade name, an observer from China suggested the documents use the standardized chemical name.

The International Coordinating Council of Aerospace Industries Association (ICCAIA) said that while the aerospace industry does not require a specific exemption, UV-328 is currently used in a few critical applications. He noted the industry has been working to identify and implement alternatives.

An observer from the UK reported that a UK-based company requested authorization to continue using UV-328 until November

2026 and requested a specific exemption for mechanical separators for blood collection tubes.

A contact group was established, chaired by Khachatryan, and met on Wednesday and Thursday.

On Friday, Khachatryan presented the draft risk management evaluation (UNEP/POPS/POPRC.18/CRP.12) and draft decision (CRP.11). He reported on discussions, noting, among others, agreement on exemptions. An observer from Saudi Arabia, supported by Hu, stressed the need to ensure there are no regrettable substitutions.

On the draft decision, Bertato proposed including text recommending the COP encourage parties and others to use alternatives to UV-328, where available, feasible, and efficient while considering that some alternatives identified could have negative environmental, human health, and socio-economic impacts due to their persistency and bioaccumulation. Tolfsen, Pinas, Beyak and others supported such an inclusion.

Hu supported the draft decision as introduced. Chair Dawson suggested any changes to the text be taken up by the COP. Following some discussion, Seppälä suggested replacing the reference to "persistency and bioaccumulation" with "their potential harmful effects." Participants agreed and the decision was adopted as amended.

Final Decision: In its decision (UNEP/POPS/POPRC.18/CRP.11), the POPRC, *inter alia*, adopts the RME. It also decides to recommend to the COP that it consider listing UV-328 in Annex A to the Convention with specific exemptions for production and use for the following:

- motor vehicles;
- mechanical separators in blood collection tubes;
- industrial coating applications for automotive coating, engineering machine coating, rail transit coating, and heavy-duty coating for large steel structures;
- tri-acetyl cellulose (TAC) film in polarizers;
- photographic paper; and
- until the end of the service life of the articles or 2044, whichever comes earlier, replacement parts for articles for motor vehicles; stationary industrial machines for use in agriculture, forestry, and construction; liquid crystal displays in medical and in-vitro diagnostic devices; and liquid crystal displays in instruments for analysis, measurements, control, monitoring, testing, production and inspection.

Consideration of Draft Risk Profiles: Chlorpyrifos: On Monday, the Secretariat introduced the draft risk profile (UNEP/POPRC/POPRC.18/4 and Add.1), the additional information (INF/8), and comments and responses (INF/9).

Rauert, drafter for the draft risk profile, reported that the intersessional working group considered the criteria to be met. On adverse effects, she reported very high acute and chronic toxicity to aquatic wildlife, high acute toxicity to birds and even higher to invertebrates. On bioaccumulation, she reported that in higher concentrations, the bio-concentration factor (BCF) increases, and that monitoring data showed chlorpyrifos was found in polar bears and ringed seals, and in human breast milk in India, Pakistan, the US and other locations. On persistence, she noted low water solubility, but high soil binding capacity. She also reported that the half-life differs depending on pH values in water and environmental conditions in soil. For LRET, she reported monitoring data that found chlorpyrifos was widely detected in remote areas in biota and biotic compartments.

Soliman queried the comparison drawn between the presence of chlorpyrifos in different environmental compartments with other POPs, given that chlorpyrifos is widely used and the other POPs cited have not been in use for many years. He called for revisiting the studies on chronic and acute effects and suggested that chlorpyrifos is not persistent in the "regular" environment.

Mishra questioned the LRET conclusion, stating that there was no evidence on how chlorpyrifos travelled to remote areas and stating that the pesticide's half-life of 14 hours in the gas phase may not facilitate LRET. He called for further studies on bioaccumulation.

Kimbara noted a Japanese study did not find evidence of bioaccumulation, suggesting that chlorpyrifos can easily metabolize.

Seppälä and Tolfsen called the LRET monitoring evidence "convincing" because the chemical has been found in remote regions where there is no local source. With Hu, they suggested focusing on the Annex E conclusion and criteria.

Pesticide Action Network (PAN) said that chlorpyrifos is highly toxic, has devastating impacts on biodiversity and on children's brain development, and is a highly volatile substance that clearly meets the Stockholm Convention requirements.

An observer from Ghana said chlorpyrifos is a chemical of high concern due to its wide usage. He called for following the science and information provided to reach an informed decision.

An observer from India suggested revisiting the data presented and examining it with caution as some of the science is very general.

An observer from the Russian Federation called for additional studies, suggesting that the current data may not meet the Convention criteria. She said there is little data on metabolite activity and the data on the period of persistence in soil does not meet the Convention criteria.

Croplife International suggested that the bioaccumulation data are speculative rather than based on actual factors and questioned whether the bioaccumulation criteria are met.

IPEN stated the substance is highly toxic for children and has already been banned in several countries, with more needing to be done in others. She said chlorpyrifos is widely detected, stated all criteria are met and called for moving to the RME stage.

An observer from China called for further investigation into the LRET data, including whether and how detection in remote areas reaches levels of concern.

The observer from the US expressed that they shared concerns that the Annex E criteria had not been met, especially on persistence and LRET. She called for discussions to take careful note of uncertainty in the information presented before moving forward.

An observer from Switzerland said all the criteria are met, stating the second criterion is fulfilled due to toxicity levels being met.

Rauert noted the requests for additional data but said chlorpyrifos has some of the most available data of any substance.

Mumbo said there is a need for data, especially regarding use in tropical regions. He stated one such study in Kenya showed the compound disappeared in less than 30 days.

A contact group was established, chaired by Rodas. It met Monday through Thursday. A drafting group convened on Thursday evening.

On Friday, the Secretariat introduced the outcome of the drafting group, a draft decision (UNEP/POPS/POPRC.18/CRP.13) and a revised draft risk profile (CRP.14).

Reporting on the work in the contact group and drafting group, Rodas explained the decision defers the decision on Annex E to POPRC-19 since the Committee was unable to agree that

information on adverse effects resulting from LRET was sufficient to reach a conclusion on the chlorpyrifos risk profile.

Janssen noted surprise at the lack of agreement, underscoring there are no doubts on chlorpyrifos' toxicity. Rauert clarified the Committee agreed on the substance's toxicity and ecotoxicity, but it disagreed whether there are adverse effects resulting from LRET. She suggested text clarifying that there is agreement that each of the Annex D criteria were met.

Several other members and observers suggested edits to make it clear in the draft decision that POPRC agreed the Annex D criteria were met, and to keep phrasing in line with the chapeau of Annex E.

Mishra opposed making changes to the decision agreed by the drafting group and Chair Dawson confirmed that since not all members had been able to participate in the drafting group the POPRC's practice is to allow members to suggest edits in plenary.

Regarding a clause in the decision listing the Annex D criteria, Rodas explained the contact group had spent considerable time discussing whether these were met, given that the issue had already been decided by POPRC-17. He noted the detail on Annex D criteria was included in the decision to avoid the issue being re-opened at POPRC-19.

Soliman underscored that while chlorpyrifos has been detected in remote regions, its source is unknown, and the levels found are of no significance for human health or the environment.

Tangbanluekal supported the draft decision and the draft risk profile, and called for continued work to gather all the information available on adverse effects from LRET.

Drawing parallels to a similar decision on Dechlorane Plus at POPRC-16, Hu and Kimbara supported requesting more information on adverse effects resulting from LRET.

The observer from the US supported the draft decision, calling it a very wise path forward, and, supported by an observer from Switzerland, suggested edits to further align the decision with the text of Annexes D and E and to clarify that POPRC is not seeking any more information on Annex D criteria.

PAN stressed the need to protect vulnerable populations from harm, explained chlorpyrifos is transported to the Arctic and detected in the environment and in food sources, and said the data requirements of Annex E have been met and are sufficient to move forward. Recalling that the EU Food Safety Agency had determined that no safe exposure level can be set, she reminded members of the Convention's directive to take a precautionary approach.

The Nunavik Regional Board of Health and Social Services appealed to members not to wait until Inuit people get sick and thus make them the "canaries of the world."

IPEN said it is irrefutable that even low exposures harm developing brains, and, considering its potential to bioaccumulate, there is a high risk for significant adverse effects on human health. She recalled the Convention's special obligation to the Arctic environment and human health, and opposed deferring the Committee's decision to POPRC-19.

Citing the provision in Article 8 that "lack of full scientific certainty shall not prevent the proposal from proceeding," the Inuit Circumpolar Council (ICC) underscored chlorpyrifos adds to an already large contaminant burden in the Arctic. She deplored that if chlorpyrifos is not moved to Annex F, it will continue to pose a risk for an even longer time.

An observer from Austria supported moving chlorpyrifos to the Annex F stage, noting it is unclear what additional information would be needed to change members' minds.

Eco-Social Development Organization (ESDO) said that even as agriculture is the backbone of Bangladesh and the use of pesticides has yielded outstanding benefits, chlorpyrifos should advance to the RME stage.

Urging the Committee to take a decision based on science and not emotion, Mishra warned that any further changes to the draft decision would bring more confusion and ambiguity.

Soliman elaborated on the history of toxic pesticides and regrettable substitutions and stated that organophosphates are not persistent, even though their toxicity is central to their applications.

Hu cautioned against using the precautionary approach as otherwise all chemicals could be moved forward once they reach the Annex E stage.

Ndlovu said the spirit in which the decision is being made allows the Committee extra time to obtain additional information so that the chemical can be properly addressed in the future.

Beyak and Rauert supported the US proposal, with Beyak suggesting that it may be unclear if chlorpyrifos is compromising health in remote areas such that global action is warranted.

Chair Dawson noted that there is no consensus on whether the requirements of Annex E have been met, nor is there a consensus on the draft risk profile. He then presented the amended draft decision. On whether to refer to "significant" adverse human health and/or environmental effects in a request for additional information, members agreed to delete the reference since it will be up to POPRC to determine significance. The decision was adopted as amended.

Final Decision: In the decision (UNEP/POPS/POPRC.18/CRP.13), the POPRC:

- decides to defer its decision on the draft risk profile for chlorpyrifos to POPRC-19;
- notes that, while the Committee has agreed that annex screening criteria have been met, the Committee was unable to agree that chlorpyrifos is likely as a result of its LRET to lead to significant adverse human health and/or environmental effects such that global action is warranted;
- decides to establish an intersessional working group to review and update the draft risk profile for chlorpyrifos in accordance with Annex E to the Convention; and
- invites parties and observers to submit to the Secretariat additional information relating to adverse effects resulting from long-range transport of chlorpyrifos before 5 December 2022.

Chlorinated paraffins with carbon chain lengths in the range C14-17 and chlorination levels at or exceeding 45% chlorine by weight: On Monday, the Secretariat introduced the draft risk profile (UNEP/POPS/POPRC.18/5 and Add.1), additional information (INF/10) and comments and responses received on the draft risk profile (INF/11).

Frydrych, Chair of the intersessional working group, reported that the working group concluded that all criteria were met. Ian Doyle (an observer from the UK) presented the draft risk profile, recalling that POPRC-17 called for more information on bioaccumulation and had noted that the scope of what are referred to as "medium-chain chlorinated paraffins" ("MCCPs") would need further discussion. He reported persistence data, including from sediment cores, and said that the longer chain substances in the studies show less ability to biodegrade.

On bioaccumulation, he reported that the log Kow is more than five for all constituents and that lab data shows BCF values above 5000 across all chain lengths. He also noted widespread detection in biota. On LRET, he said the modelling data shows similarities with SCCPs in terms of atmospheric transportation and that these

chlorinated paraffins have been found in the Arctic, Antarctic and Tibetan plateau. He noted that chain lengths C14-17 were used for REACH registration in the EU, where adverse effects were noted. He reported that these chemicals are very toxic to aquatic invertebrates and there are effects via lactation.

Bertato questioned the scope of the chemical identity, noting that the EU had also included congeners with a lower chlorination level in its legislation. She said the bioaccumulation criteria from monitoring data for all chain lengths are fulfilled.

Hu called for a focus on risk, particularly an assessment of the risks of different endpoints given their hazards and concentrations in remote regions.

Kimbara agreed that the criteria were met. He said the discussion of the limits of different analytical methods is a risk management issue for the Annex F stage, stressing the value of global cooperation to develop such methods.

Janssen queried if electronic waste (e-waste) was the most important waste stream to highlight and called for greater discussion of the unpublished studies referenced in the draft risk profile, underlining that peer reviewed publications should take precedence.

Tolfsen said the criteria appear to be fulfilled and drew attention to the high production volumes and emissions, and the increasing levels evident in the environment.

ACAT observed that listing SCCPs caused producers to shift to MCCPs, and recalled a recent study that found that concentrations of MCCPs exceeded concentrations of SCCPs in 75% of the samples taken from around the world.

An observer from Switzerland called for widening the scope to a lower chlorination level by weight considering the precautionary principle and to avoid regrettable substitutions. An observer from Ghana queried if C18 carbon chain lengths could be included.

An observer from China called for further consideration of the bioaccumulation data for C15-17 and said data on the human health toxicity is limited.

The observer from the US said the chemical identity should be clearly stated, noting that several countries only identify these chemicals by their chlorination levels. She also suggested including an explanation for why the chlorination level differs from that in the SCCPs listing decision, which is 48% by weight.

The International Council of Chemical Associations (ICCA) stated that the bioaccumulation data were limited and additional and more current data should be evaluated to see if the criteria are met.

POPRC members agreed to establish a contact group on the issue, chaired by Uiseb. The contact group met Tuesday through Thursday.

On Friday, Uiseb introduced the draft risk profile (UNEP/POPS/POPRC.18/CRP.10) and the draft decision (CRP.9), noting that the contact group had extensive discussions regarding the scope of the listing.

Bertato, supported by Tolfsen and an observer from Switzerland, called for including mixtures with 40% chlorination levels. She said that the decision on the limit of 45% was based on a biodegradation screening study, and suggested that simulation studies show persistence at 40% levels. She reported that the EU REACH registration processes are identifying products in the EU that contain CPs below 45% that could be POPs. With others in support, she expressed concern about regrettable substitutions should only the mixtures with higher chlorination levels be listed.

An observer from Switzerland expressed his disappointment that POPRC's review was limited to the scope of the original nomination and stated he and others understood that POPRC could agree to a wider scope at this meeting. The observer from the US expressed satisfaction that the POPRC's process, to review information related to the original nomination, was followed correctly. Tolfsen stated that, as a scientific committee that reviews the available information, the POPRC should be able to expand the scope if the information indicates that it is necessary.

An observer from the UK stated the document is transparent about the areas of uncertainty and noted that there are uncertainties in the interpretation of the Organisation for Economic Co-operation and Development (OECD) study on lower chlorination levels at the congener level, which led the UK to decide to nominate mixtures at or above 45%.

The observer from the EU said it is a "misinterpretation" that lowering the chlorination level would widen the scope of the nomination. She noted that the draft risk profile mentions chlorination levels of 40% and underlined that it has been analytically demonstrated that the congeners that make up the mixtures at 45% are also present at 40% levels. She noted the inefficiencies of submitting a new nomination for these substances with lower chlorination levels to avoid regrettable substitutions.

The draft risk profile and decision were then adopted.

Final Decision: In its final decision (UNEP/POPS/POPRC.18/CRP.9), the POPRC, *inter alia*:

- adopts the risk profile;
- decides that chlorinated paraffins with carbon chain lengths in the range C14-17 and chlorination levels at or exceeding 45% chlorine by weight are likely, as a result of their LRET, to lead to significant adverse human health and environmental effects such that global action is warranted;
- also decides to establish an intersessional working group to develop an RME; and
- invites parties and observers to submit relevant information to the Secretariat by 5 December 2022.

Long-chain perfluorocarboxylic acids (LC-PFCAs), their salts and related compounds: On Monday, the Secretariat introduced the draft risk profile (UNEP/POPS/POPRC.18/6 and Add.1), additional information (INF/12), comments and responses (INF/13), and an indicative list of LC-PFCAs, their sales and related compounds (INF/14).

Beyak introduced the draft risk profile. Outlining the chemical identity, he explained this risk profile addresses PFCAs with carbon chain lengths in the range C9-21 and their related compounds.

Noting LC-PFCAs are used in many applications ranging from electronics to ski waxes and fire-fighting foams, he pointed to releases during production and throughout product life cycles as well as from many indirect sources. He reported that LC-PFCAs are detected globally in a wide variety of environmental matrices and in humans, including in items indicating maternal transfer.

Beyak underscored the draft risk profile summarizes several mechanisms for LRET, including atmospheric and oceanic pathways. He said lab studies demonstrate a variety of adverse effects in different species, flagging animal data for LC-PFCAs with carbon chain lengths in the range C9-14, C16 and C18. He noted effects on the liver, immune system, thyroid, reproduction/development, and cardiometabolic function. Explaining ongoing production, he said LC-PFCAs are globally ubiquitous and reported the intersessional working group recommended a conclusion that global action is warranted.

Several members supported recommending that global action is warranted. Janssen sought clarification on a reference to unintentional production and on the volume of C9-19 chain-length LC-PFCAs currently produced worldwide.

Seppälä suggested presence in incineration residues may be an unintentional production or evidence that these substances are not destroyed by municipal solid waste incineration processes. Soliman queried whether the incineration of these chemicals can lead to the unintentional production of dioxins and furans.

Noting that there is reliable data for C9-18 chain-length LC-PFCAs, Kimbara questioned the appropriateness of a read-across to C19-21 chain-length LC-PFCAs and explained that test results indicate toxicity decreases with increased carbon number. Hu raised a concern about the lack of data for C19-21 LC-PFCAs.

Bertato commended the modelling work undertaken to fill in data gaps and, on related compounds, flagged the potential for overlap with the discussion on PFOA-related compounds.

On the scope, an observer from Sweden supported the inclusion of all chain lengths up to C21, noted that they are found in technical mixtures of LC-PFCAs, and explained that including all chain lengths is in line with the reasoning the POPRC applied to the listing of PFOA.

Noting it is evident that C9-18 LC-PFCAs fulfil all criteria, an observer from Switzerland acknowledged there was limited evidence for LC-PFCAs longer than C18. He stressed the need to take into account the extreme persistence of LC-PFCAs and to be mindful of the precautionary principle.

IPEN underscored the extensive detection of LC-PFCAs as a result of LRET and said it leads to exposure and unacceptable health impacts on Arctic Indigenous populations. She stressed the importance of addressing the full range of LC-PFCAs and said the read-across approach employed is valid. She emphasized the grouping approach is by far the most effective means of handling groupings of similar chemicals and supported the continued use of this approach going forward.

The Nunavik Regional Board of Health and Social Services cautioned against making their population global lab rats, underscoring that lack of data does not mean lack of risk, and highlighted known adverse human health effects.

An observer from China highlighted the lack of data on C19-21 LC-PFCAs.

An observer from Austria supported the conclusion that global action is warranted and highlighted a recent EU human biomonitoring study, which documents high levels of PFAS (per- and polyfluoroalkyl substances) in blood in teenagers across the EU, notably in France, Sweden and Norway.

The ICC supported moving forward to the RME phase and flagged a recent report by the Arctic Monitoring and Assessment Programme that demonstrated prevalence in people across the Arctic.

The observer from the US supported moving to the RME phase and supported calls for more information on the read-across to address certainties for C15-21 LC-PFCAs.

On the read-across, Beyak noted the intersessional working group had followed an approach consistent with agreed international standards for doing so.

POPRC members agreed to establish a contact group, chaired by Ndlovu. The contact group met on Tuesday and Wednesday.

On Friday, Ndlovu introduced the draft risk profile (UNEP/POPS/POPRC.18/CRP.7) and draft decision. Both were adopted.

Final Decision: In its decision (UNEP/POPS/POPRC.18/CRP.6), the POPRC:

- adopts the risk profile for LC-PFCAs, their salts and related compounds;
- decides that LC-PFCAs, their salts and related compounds are likely, as a result of their LRET, to lead to significant adverse human health and/or environmental effects such that global action is warranted;
- also decides to establish an intersessional working group to prepare an RME that includes an analysis of the possible control measures; and
- invites parties and observers to submit relevant information to the Secretariat before 5 December 2022.

Review of information related to specific exemptions for decabromodiphenyl ether and short-chain chlorinated paraffins: The Secretariat introduced the information and draft decision (UNEP/POPS/POPRC.18/7). Frydrych provided an overview of the intersessional work, including the relevant decisions and registered exemptions. She lamented that limited information on decaBDE was received, with only a few countries submitting updates on their use of the POP. She noted that decaBDE has been used in a wide range of concentrations, concentrations are expected to decline over time, and articles in use will continue to contribute to concentrations. She suggested further recommendations from POPRC could include urging parties to identify the need for specific exemptions and registering if such a need is identified.

Soliman queried which articles contain 30% decaBDE, with Chair Dawson noting high levels of usage in the past.

The observer from the US cautioned on timing issues so that POPRC's recommendations to the COP are consistent with the Convention, hoping that this discussion will encourage parties to submit notifications as soon as possible, preferably as soon as they become a party.

An observer from Viet Nam acknowledged that their request for exemptions was submitted after the deadline. He said that as decaBDE and SCCPs are used in numerous sectors, manufacturers may find it difficult to alter operations immediately.

ACAT said there is an urgent need to end exemptions and move to non-brominated alternatives.

An observer from the UK noted its national implementation plan and supported temporary retention of exemptions, stating that to remove exemptions, public consultations would need to be held or the exemptions would have to expire.

An observer from Saudi Arabia said it seems the substance is used more in the industrial fields and this must be assessed.

The observer from the US stated that changes in administration mean regulatory actions have changed and this needs to be reflected in the updated report.

Tolfsen suggested deleting information not related to decaBDE and noted the report contains outdated information.

Chair Dawson acknowledged general support for finalizing this report to forward to the COP, noting revisions are needed. He requested the Secretariat to make the necessary changes and submit it as a conference room paper (CRP) so that it can be considered with a draft decision for possible adoption later in the week.

On SCCPs, Frydrych outlined the specific exemptions, stating that by the end of August, no party had registered any specific exemptions. She noted the Secretariat is currently reviewing Viet Nam's forms to register for specific exemptions. She further noted China has indicated that they may have a need for specific exemptions. She concluded there is limited information from parties, but several parties noted SCCPs may be present in products and articles in use and, in turn, wastes. She said there are alternatives that are commercially available for all known uses. Further recommendations, she noted, could include urging parties to identify

the need for specific exemptions and register if such a need is identified, and considering the use of non-combustion technologies for the destruction of products.

Seppälä, supported by Janssen, and observers from Austria and Switzerland, suggested deleting or amending a paragraph in the report that urges parties to consider non-combustion destruction technologies to avoid POPs by-products. He and Janssen supported a reference to the Basel Convention's general technical guidelines on POPs wastes. An observer from Austria noted these guidelines state that there are abatement techniques available for some incineration facilities and that non-combustion destruction technologies may not be appropriate for all products.

ACAT recalled that the RME adopted by the POPRC in 2016 concluded that there were safe and economically feasible alternatives for all SCCP uses. She underlined that burning plastics containing SCCPs can generate dioxins and other POPs.

An observer from Switzerland suggested that the next COP delete all specific exemptions for which no party has registered. The observer from the US noted that the Convention allows for parties to use listed chemicals for a specific exemption for the first five years, during which time the POPRC does not have a role to assess ongoing uses.

The Committee tasked the Secretariat with updating the draft report for consideration along with the draft decision. The revised reports (CRP.3 for decaBDE and CRP.5 for SCCPs) were considered on Friday, and the decision was adopted.

Final Decision: In its decision (UNEP/POPS/POPRC.18/7), the POPRC decides to submit the revised reports on the information related to the specific exemptions for decaBDE and SCCPs to COP-11 for consideration. It also requests the Secretariat to prepare a decision reflecting the Committee's recommendations in the reports for the consideration of COP-11.

Process for the evaluation of perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride: On Tuesday, the Secretariat introduced the report on the evaluation process (UNEP/POPS/POPRC.18/8) and the draft reports on the evaluation of alternatives (INF/19) and on the evaluation of PFOS, its salts and PFOSF (INF/20). She reported that there are only two specific exemptions, for metal plating and fire-fighting foams, and one acceptable purpose, for leaf-cutting ant baits, and that the report contains recommendations for each of these applications.

Bertato noted that domestic regulatory processes are underway and that the EU has provided updated information.

An observer from Austria stated some information may be outdated given the regulations in place and expressed a willingness to provide updated information. She said pest control is a complex issue but alternative information on their usage is documented. She stated the EU is developing best practices for the sector based on the Sevilla Process, which reviews and updates the environmental norms in agro-industrial installations. An observer from Sweden expressed concern that there was limited progress in phasing out sulfluramid and suggested reflecting that industries are considering fluorine-free options.

The observer from the US observed that the five-year period for specific exemptions begins when the listing comes into force, and noted that some parties may be interpreting the Convention in a way that implies that the five years begins when a country becomes a party to that amendment.

Reporting that it has ended production, an observer from China queried if the COP would take a decision on these continued uses at the next meeting. The Secretariat clarified that the COP reviews the ongoing uses every four years, with the next review occurring at the next COP.

IPEN observed considerable change in the availability and efficacy of fluorine-free fire-fighting foams and underscored that this specific exemption is no longer needed. She lamented that non-chemical alternatives to sulfluramid have been developed but are not currently available and suggested that this acceptable purpose be converted to the time-limited specific exemption.

An observer from Viet Nam said that most of their use is in metal plating, but also fire-fighting foams. He said they are considering alternatives, but they are more expensive than PFOS.

ESDO underlined that developing countries deal with the problems arising from transboundary movement and called for ending all specific exemptions.

The Nunavik Regional Board of Health and Social Services underscored that Arctic peoples are paying the price, especially in the long term, and called for ending the specific exemptions.

The Committee agreed that the Secretariat would revise the draft report and submit it for consideration along with a draft decision later in the meeting. The revised report (UNEP/POPS/POPRC.18/CRP.4) was considered on Friday and the decision was adopted.

Final Decision: In its decision (UNEP/POPS/POPRC.18/8), the POPRC decides to submit the recommendation on the continued need for those chemicals set out in the revised report on the alternatives to PFOS, its salts and PFOSF to COP-11. It also requests the Secretariat to finalize its report on the evaluation of information on PFOS, its salts and PFOSF on the basis of the Committee's suggestions and submit it for the consideration of COP-11.

Long-range environmental transport: The Secretariat introduced this agenda item (UNEP/POPS/POPRC.18/9, INF/21 and INF/22).

Seppälä presented the draft report. On key considerations, he cited making a distinction between the LRET of plastics versus the LRET of additives in plastic, acknowledging that they are still grappling with how to address the issues raised by plastics more generally in the document. He questioned how to evaluate transfer to the receiving environment. He noted there is new information on plastics and microplastics becoming available continuously and in the future, the modalities of how to keep the document up to date should be considered. He also highlighted the need to consider the relationship with Annex E, and whether the Annex E paper should also be updated.

Dawson observed the challenges posed by the large number of comments received. He proposed work continue during the next intersessional period, introducing a draft work plan that includes future rounds of comments.

Jaiteh lauded the document's comprehensiveness but said there are several uncertainties regarding the different transmission mechanisms.

Janssen provided specific corrections including that wind speeds are likely to be higher than is currently stated in the document. Tolfsen supported the continued development of the document, especially considering the new information on plastics becoming available.

Hu noted that the report is very scientific and supported continued work. With observers from the UK and US, he urged a focus on chemicals, in line with the scope of the Convention.

ICCA said it is crucial to have clear guidelines and said the document makes great strides in this matter. He expressed concern that the document may be moving beyond the ambit of the

Convention as this potentially goes beyond the consideration of the LRET of chemicals.

An observer from Japan said they expect that the draft text will be updated on a continuous basis given the further accumulation of scientific data.

IPEN said the report would benefit from further work and supported the proposed work programme. An observer from the UK said the report should focus on additives and not on plastics.

The Nunavik Regional Board of Health and Social Services lamented that the burden of proof is on those living in the Arctic, saying that they carry the risks but realize none of the benefits from chemical usage.

Seppälä said the report does concentrate on POPs, but it could be of interest to the ongoing plastics negotiations, noting the information is rapidly changing. He said the report makes a distinction between plastics as carriers and the release of chemicals into the surrounding environment. He stressed the report notes that plastics are a transport route and, to some extent, prevent the degradation of chemicals.

Chair Dawson proposed the Secretariat draft a decision to establish an intersessional working group to update the report in line with the proposed work plan. This decision was adopted on Friday.

Final Decision: In its decision (UNEP/POPS/POPRC.18/CRP.2), the POPRC decides to establish an intersessional working group to further develop the document for the Committee's consideration.

Workplan for the Intersessional Period

On Friday, the Secretariat introduced the draft workplan (UNEP/POPS/POPRC.18/10), noting that the dates of the next meeting are tentative. The POPRC adopted the workplan and agreed to Chair Dawson's summary of the Co-Chairs and drafters for each intersessional working group.

Other Matters

Format of Draft Reports: Hu noted that for POPRC-18 only the executive summaries of the documents had been translated and noted the full documents used to be translated. He, with several other members, underscored the efficiency, inclusivity, and transparency benefits derived from translation.

Chair Dawson noted the POPRC-18 documents were very long, saying in the past they have tried to keep documents to 20 pages in length. Tolfsen, supported by Hu, Kimbara, and the observer from the US, called for concise documents.

An observer from the UK acknowledged that the draft risk profile for chlorinated paraffins exceeded the preferred length but said the length was required to make the case for listing.

The Secretariat said the intersessional period was extremely short, which resulted in only the executive summaries of the varying documents being available in time for translation. She said budgetary implications are also a concern as an increase in the number of chemicals considered increases the cost of translation. She reaffirmed that for POPRC-19, they plan to translate the full documents.

Venue and Date for POPRC-19

On Friday, the Secretariat announced that POPRC-19 is tentatively scheduled for 9-13 October 2023 in Rome, Italy, and that the meeting will be held back-to-back with the meeting of the Rotterdam Convention's Chemical Review Committee.

Closure of the Meeting

On Friday, the POPRC adopted the report of the meeting (UNEP/POPS/POPRC.18/CRP.1).

Abiola Olanipekun, BRS Secretariat, thanked members for their robust and engaging discussions that help to shape a better future for the generations to come. She conveyed the Secretariat's appreciation and admiration for the highly scientific and technical contributions of members and observers to the Committee's work. She celebrated that Italy had ratified the Stockholm Convention as POPRC unfolded.

Chair Dawson thanked members for their efforts to realize a successful meeting and the observers for the "enormous amount of useful input throughout the week."

He gaveled the meeting to a close at 5:25 pm.

A Brief Analysis of POPRC-18

The eighteenth meeting signaled a return to normal (or to a post-COVID-19 "normal") for the Persistent Organic Pollutants Review Committee (POPRC-18). Only eight months ago, POPRC met in a fully hybrid format in Geneva. Now back in Rome, almost all members participated in person. And so, after a fond *buongiorno*, members set to work to tackle their full agenda.

After 17 meetings, POPRC is a well-oiled machine. Its work continues to be anchored by two trios of annexes spelled out in the 2001 Stockholm Convention on POPs: Annexes A, B and C provide three options for controlling a substance, while Annexes D, E and F set out the information to be considered at each stage of the Committee's review before it can recommend listing to parties. This brief analysis examines key outcomes of POPRC-18 through the lens of the annexes. POPRC-18 revealed subtle shifts, and, at times "annex confusion," as members completed their expert reviews, a key scientific contribution to the global effort to protect human health and the environment.

The Three-Stage POPRC Review Process: Annexes D, E and F

From its inception, the Stockholm Convention was designed to be a dynamic and evolving Convention—and the POPRC has a central role in fulfilling this vision. Once a party proposes a substance for listing, the Committee first reviews whether there is information that the substance satisfies the screening criteria set out in Annex D relating to persistence, bioaccumulation, potential for long-range environmental transport (LRET), and adverse effects. Next, information is gathered according to Annex E to conduct a risk profile that evaluates "whether the chemical is likely, as a result of its LRET, to lead to significant adverse human health and/or environmental effects, such that global action is warranted." Finally, Annex F calls for collecting information on socio-economic considerations as part of a risk management evaluation. With these considerations at hand, the Committee recommends eliminating the substance (Annex A), restricting its use (Annex B), and/or controlling unintentional production (Annex C). At this point, the Committee may also provide guidance to parties on whether exemptions are appropriate or whether there may be enduring acceptable purposes.

On paper, it is a straightforward, stepwise approach, but POPRC-18 showed it can be difficult to limit discussions to the relevant stages. For the three draft risk profiles at the Annex E stage,

there was a surprising number of references to Annexes D and F as members looked back to previous decisions and anticipated future discussions.

For chlorpyrifos, POPRC-17 was satisfied that the Annex D screening criteria were met. This is the first organophosphate pesticide considered by POPRC, a class of chemicals not traditionally thought to be persistent. From the outset, members raised concerns about the evidence of chlorpyrifos' persistence, especially the environmental conditions under which the substance is found to persist. As deliberations shifted to an animated contact group, the Chair, observers, and other members repeatedly reminded that the task at hand was to determine whether the risks to human health and the environment warrant global action as the Annex D screening criteria had already been met. And yet, deliberations repeatedly drifted back to the Annex D criteria.

The case of chlorpyrifos brought into sharp relief the complexity of shifting from four discrete determinations under Annex D, to a more holistic assessment of the risk under Annex E. Participants agreed that chlorpyrifos has been detected in remote regions and that the pesticide has adverse effects (two discrete Annex D criteria). The disagreement deepened when the pieces were put together: as a result of its LRET, does chlorpyrifos represent a risk of adverse effects that warrant global action? Some members and observers, pointing to advances in technology allowing detection at ever lower levels, cautioned against equating detection with adverse effects. Others, most vocally representatives from Arctic Indigenous communities, pointed to a recent EU Food Safety Authority determination that there is no safe level of exposure to chlorpyrifos. They called for taking a precautionary approach, notably in light that POPs may have additive effects as they co-occur in humans and the environment. In the end, the Committee was unable to agree that global action is warranted and will instead reconsider the question at POPRC-19.

Annex confusion also cropped up in the other two draft risk profiles on the agenda. For both chemicals, concerns emerged about how to define their identity, or if that's a matter of risk management better suited to the Annex F phase. Complicating matters, the two candidates in question are complex groups of industrial chemicals: long-chain perfluorocarboxylic acids (LC-PFCAs), their salts and related compounds; and chlorinated paraffins with carbon chain lengths in the range C14-17 and chlorination levels at or exceeding 45% chlorine by weight, referred to by the short-hand of "medium-chain chlorinated paraffins" or "MCCPs."

Annex E is largely about confirming the substance is a POP, while Annex F is about management. Some members, however, were keen to broaden how the substances were being defined as POPs: namely to include longer chains for LC-PFCAs and to set a 40% chlorination level "floor" for "MCCPs." Others arguing to lower the chlorination level, or to broaden the scope of the proposed listing pointed to management issues, especially the prospect of improving eventual control measures and avoiding regrettable substitutions that would then only inevitably come before the POPRC in the future. They flagged precedents in POPRC's earlier work, notably the Committee refining the listing as it progressed through its review of perfluorooctane sulfonic acid (PFOS) and its salts to also list perfluorooctane sulfonyl fluoride (PFOSF). In this case, managing PFOS required addressing PFOSF as well, which prompted an expansion of the scope, but this occurred at the Annex F stage.

For each substances discussed at POPRC-18, the Committee agreed that global action is warranted, for the narrower scope of chemicals that were originally proposed. What remains to be seen is whether Annex F does provide the window for this adjustment for these two groups of chemicals.

Guiding Parties' Listing Process: Annexes A, B and C

POPRC-18 also had on its agenda two substances at the risk management evaluation phase: Dechlorane Plus, a flame retardant, and UV-328, a plastic stabilizer. As members considered what information to convey to parties as part of their recommendation for listing, the POPRC made a concerted effort to assist the COP in its consideration, especially in light of an evolving understanding and application of listing in Annexes A and B.

Annex A lists substances slated for elimination. Parties can opt to allow for specific exemptions, which expire five years after the amendment enters into force for that substance, and can be extended another five years (often referred to as "5+5"). However, in 2017, the COP set a precedent when listing decabromodiphenyl ether (decaBDE): it listed broad exemptions that surpassed the 5+5 rule, for example for use in spare parts for the maintenance of vehicles still in service.

In contrast, Annex B lists substances slated for restriction. The COP identifies non-time-limited "acceptable purposes," as well as time-bound specific exemptions for Annex B listings. At the Convention's adoption, the only substance listed under Annex B was DDT, with an acceptable purpose of disease vector control. In 2009, parties also listed PFOS, its salts and PFOSF under Annex B, with numerous acceptable purposes and specific exemptions. These acceptable purposes for PFOS have since been narrowed to one: insect baits with sulfluramid for control of leaf-cutting ants for agricultural use. To this day, they remain the only two POPs listed under Annex B.

At POPRC-18, members and observers made a concerted effort to guide the COP on the specific exemptions for Dechlorane Plus and UV-328, detailing which uses should continue and for how long. POPRC-18's review was complicated by missing information and national security (it was difficult to get a list of the defence applications for Dechlorane Plus, and only broad categories were possible, such as naval vessels and missiles). The short intersessional period compounded the challenges, as there was less time to engage with the wide range of sectors using these chemicals and gather relevant information on uses and available alternatives for those uses. A last-ditch engagement with the space industry proved helpful on the final day to add useful detail to the exemption. Some members lamented there were no observers from the vehicle manufacturing industry present.

These two candidate POPs are currently used in many of the same sectors, and there was a tendency in the negotiations to seek parallelism between the exemptions proposed for each. However, some observers provided punctuated reminders that while Dechlorane Plus flame-retardant applications may be essential, UV-328's stabilizing applications prevent discoloration and degradation under sunlight. This difference contributed to broader conversations about the lack of criteria for exemptions and acceptable purposes. In contrast to the Montreal Protocol on Substances that Deplete the Ozone Layer, where the Technical Options Committees explicitly review substances to grant exemptions for "critical" or "essential" uses, the Stockholm Convention states the uses only need to be "specific."

The lengthy time horizons for some of the uses contemplated raised questions about which annex would be more suitable. When discussing spare parts for vehicles, including aircraft and ships that might continue to require maintenance for decades, a few raised the question of whether such a time frame might more realistically constitute an "acceptable purpose" and thus might better fit as a listing under Annex B. Others pointed to the existing precedent of decaBDE and the long timelines for those exemptions. That both substances in the end were recommended for listing under Annex A with exemptions, also reflects that these uses are not considered to be in the "spirit" of Annex B.

A Busy Intersessional Period Ahead

When parties gather in Geneva in May 2023 for their next COP, POPRC members will see if their efforts to characterize and define the specific exemptions for Dechlorane Plus and UV-328 will be taken up by parties. Looking ahead to POPRC-19, while many participants celebrated the return to their customary year-long intersessional period, which will provide time to develop two risk management evaluations and gather further evidence on chlorpyrifos.

POPRC's work takes place amid growing momentum to address chemicals, waste, and pollution more broadly. This includes, for example, ongoing negotiations for a treaty to combat plastic pollution and for establishing a science-policy panel for chemicals, waste and pollution, and the conclusion of the intersessional process considering the Strategic Approach and sound management of chemicals and waste beyond 2020. POPRC's work relates to all these processes, as its reviews of chemical additives in plastics or assessments of pesticides can provide important information. Yet, these initiatives were seldom mentioned at POPRC-18, perhaps showing the confidence of members, the COP, and the wider chemicals governance community in the sound guidance provided by this long-standing expert group.

Upcoming Meetings

OEWG1 on a Science-Policy Panel to Contribute Further to the Sound Management of Chemicals and Waste and to Prevent Pollution: The first part of the first session of the *ad hoc* open-ended working group (OEWG-1.1) on a science-policy panel to contribute further to the sound management of chemicals and waste and to prevent pollution will address procedural matters, including the election of its Chair and Bureau, as well as the rules of procedure for the conduct of its work. The meeting will also allow Member States and observers the opportunity to deliver general statements on the establishment of the science-policy panel. **date:** 6 October 2022 **location:** Nairobi, Kenya and virtual **www:** unep.org/events/conference/oewg1-science-policy-panel-contribute-further-sound-management-chemicals-and

Plastics INC-1: The Intergovernmental Negotiating Committee (INC) to develop an international legally binding instrument on plastic pollution, including in the marine environment, will hold its first substantive meeting. **dates:** 28 November – 2 December 2022 **location:** Punta del Este, Uruguay **www:** unep.org/events/conference/inter-governmental-negotiating-committee-meeting-inc-1

SAICM IP4.2: The resumed fourth meeting of the Intersessional Process for Considering the Strategic Approach to International Chemicals Management (SAICM) and the Sound Management of Chemicals and Waste Beyond 2020 (IP4.2) will continue negotiations on the post-2020 platform or instrument for the sound management of chemicals and waste. **dates:** TBC (first quarter 2023) **location:** TBC **www:** saicm.org/

Thirteenth meeting of the Open-ended Working Group of the Basel Convention: The thirteenth meeting of the Open-ended Working Group to the Basel Convention will meet to discuss technical guidelines, including for plastic wastes and lead-acid batteries, and legal issues such as the Annex IV proposals related to e-wastes, among other issues. **dates:** 21-23 February 2023 **location:** Geneva, Switzerland **www:** basel.int/

Basel COP-16, Rotterdam COP-11 and Stockholm COP-11: The next TripleCOP will address the listing of chemicals under the Rotterdam and Stockholm Conventions as well as technical guidelines for the sound management of wastes, including plastics. Technical and financial support, among other issues, will also be addressed. **dates:** 1-12 May 2023 **location:** Geneva, Switzerland **www:** brsmeas.org/

ICCM-5: The Strategic Approach to International Chemicals Management's (SAICM) governing body, the International Conference on Chemicals Management (ICCM), is due to consider recommendations for a post-2020 platform or instrument for the sound management of chemicals and waste. **dates:** 25-29 September 2023 **location:** Bonn, Germany **www:** saicm.org/

CRC-19: The Rotterdam Convention's Chemical Review Committee (CRC) is due to consider draft decision guidance documents on methyl bromide and paraquat, draft rationales on chlorfenvinphos, carbaryl, methidathion, and thiodicarb, and examine notifications of final regulatory actions on several other chemicals. **dates:** 2-6 October 2023 **location:** Rome, Italy **www:** pic.int/

POPRC-19: The POPRC is due to consider LC-PFCAs, MCCPs, and chlorpyrifos. **dates:** 9-13 October 2023 **location:** Rome, Italy **www:** pops.int/

For additional upcoming events, see sdg.iisd.org

Glossary

ACAT	Alaska Community Action on Toxics
BCF	Bio-concentration factor
BRS	Basel, Rotterdam, and Stockholm Conventions
COP	Conference of the Parties
DecaBDE	Decabromodiphenyl ether
ESDO	Eco-Social Development Organization
ICC	Inuit Circumpolar Council
ICCA	International Council of Chemical Associations
IPEN	International Pollutants Elimination Network
LC-PFCAs	Long-chain perfluorocarboxylic acids
LRET	Long-range environmental transport
MCCPs	Medium-chain chlorinated paraffins
PAN	Pesticides Action Network
PFOS	Perfluorooctane sulfonic acid
PFOSF	Perfluorooctane sulfonyl fluoride
POPs	Persistent organic pollutants
POPRC	Persistent Organic Pollutants Review Committee
RME	Risk management evaluation
SCCPs	Short-chain chlorinated paraffins