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Working Group of the Parties

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Item 5 (b) of the provisional agenda

**Programme of work and operation of the Protocol:
development of the Protocol**

Note on possible linkages between pollutant release and transfer registers and plastic pollution*

Prepared by the secretariat in consultation with the Bureau

Introduction

1. Public perception of releases of plastic¹ into environmental media as a pollutant release has increased over recent years. Activities aiming to prevent and reduce plastic pollution² have been developed throughout different sectors and by a variety of stakeholders.³

* This document was scheduled for publication after the standard publication date owing to circumstances beyond the submitter's control.

¹ Plastics are a mix of polymerized chemicals, such as polyethylene (PE) (high density polyethylene (HDPE) or low density polyethylene (LDPE), polypropylene (PP), polyvinyl chloride (PVC), polyurethane (PUR), polystyrene (PS) or polyethylene terephthalate (PET). Other plastics include tetrafluoroethylene (teflon), polycarbonate, acrylonitrile butadiene styrene, etc., and non-polymerized additives, such associated chemicals include bisphenol A, octylphenol, nonylphenol, phthalate, boric acid, tris (2-chloroethyl) phosphate and brominated flame retardant. See also Peter Kershaw, Alexander Turra and Francois Galgani, eds., *Guidelines for the monitoring and assessment of plastic litter in the ocean*, Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, Reports and Studies 99 (Nairobi, United Nations Environment Programme (UNEP), 2019).

² No universal definition of “plastic pollution” exists. Plastic pollution is a form of chemical pollution and includes plastic particle pollution (microplastics, etc.) and the associated releases of toxic substances during production, use and disposal or recovery (e.g., di-(2-ethyl hexyl) phthalate (DEHP), toxic per- and polyfluoroalkyl substances (PFAS), etc.). See UNEP, “Plastic Pollution”, available at www.unep.org/plastic-pollution.

³ See UNEP, “What you need to know about the plastic pollution resolution”, 2 March 2022, available at www.unep.org/news-and-stories/story/what-you-need-know-about-plastic-pollution-resolution.



At the multilateral level, the plastic waste amendments to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal entered into force in January 2021⁴ and United Nations Environment Assembly of the United Nations Environment Programme (UNEP) resolution 5/14 entitled “End plastic pollution: towards an international legally binding instrument”⁵ was adopted on 2 March 2022 by the United Nations Environmental Assembly of UNEP at its resumed fifth session (Nairobi (hybrid) 28 February–2 March 2022). In this regard, the Bureau at its twenty-second meeting (Geneva, 9 June 2022) discussed the matter and noted the overlap and potential synergy between the scope of the Protocol on Pollutant Release and Transfer Registers (Protocol on PRTRs) and the scope of a possible future instrument to end plastic pollution. The Bureau also requested the secretariat, in consultation with the Bureau, to prepare a note on the possible linkages between pollutant release and transfer registers (PRTRs) and plastic pollution, taking into consideration also experiences in countries and under relevant organizations.⁶

I. United Nations Environment Assembly of the United Nations Environment Programme resolution 5/14 – a life cycle approach to end plastic pollution

2. At the resumed fifth session of the United Nations Environment Assembly of UNEP, States Members of the United Nations decided to end plastic pollution and begin negotiations with the aim of forging an international legally binding agreement by 2024. The text of resolution 5/14 includes several elements that could imply possible synergies with the promotion of PRTRs, including the following:⁷

- Specifying national reporting
- Increasing knowledge through awareness-raising, education and information exchange
- Promoting cooperation with relevant regional and international instruments, avoiding duplication and promoting complementarity of action

3. Furthermore, and as a central element of resolution 5/14, any future treaty should apply a life cycle approach to ending plastic pollution. A life cycle approach allows people to make informed decisions that protect human health and the environment. Each life cycle stage offers the potential to reduce resource consumption and improve the performance of products to ensure collective responsibility across all stages of a product’s life cycle, thereby helping to design practical actions to tackle pollution.⁸ The life cycle approach requires supporting data on pollutant releases during the production, use and disposal or recovery operations of plastic products. PRTRs can disseminate data linked to the different steps along the value chain or life cycle of plastics. Effective provision and handling of such data is an important subject in terms of exploring potential linkages between the possible future treaty to end plastic pollution and the reporting infrastructure under PRTR systems. In some countries, PRTRs already include data on releases from products, providing an opportunity to share important experience on the topic, including on the related gaps and challenges.⁹

⁴ See Secretariat of the Basel Convention, “Questions and answers related to the Basel Convention Plastic Waste Amendments”, available at www.basel.int/Implementation/Plasticwaste/PlasticWasteAmendments/FAQs/tabid/8427/Default.aspx.

⁵ UNEP/EA.5/Res.14.

⁶ Report of the twenty-second meeting of the Bureau, paras. 13 and 14 (b), available at <https://unece.org/environmental-policy/events/bureau-protocol-prtrs-22nd-meeting>.

⁷ UNEP/EA.5/Res.14, para. 3.

⁸ See UNEP, “How can a life cycle approach curb the plastic pollution crisis?”, 27 July 2022, available at www.unep.org/news-and-stories/story/how-can-life-cycle-approach-curb-plastic-pollution-crisis.

⁹ See the Report on the outcomes of the survey on the experiences in implementing the Protocol on Pollutant Release and Transfer Registers (ECE/MP.PRTR/WG.1/2020/4).

II. Scope of the Protocol and definitions in the context of “plastic pollution”

4. The Protocol on PRTRs may contribute to the prevention and reduction of pollution through the establishment of coherent and integrated PRTR systems (art. 1). When the Protocol was negotiated, plastic pollution in the PRTR context was arguably not an issue that was given explicit attention. Nevertheless, the Protocol covers relevant reporting by operators and owners on the production of plastics, as well as reporting on disposal and recovery operations. Production of plastic and associated substances are listed in the Protocol’s annexes, with the obligation to report and disseminate data on related releases and transfers. The relevant text of the Protocol is as follows:¹⁰

- Pursuant to activities listed under annex I to the Protocol on PRTRs, operators and owners of production facilities of basic plastic materials (polymers, synthetic fibres and cellulose-based fibres), synthetic rubbers, surface-active agents and surfactants are required to report on releases and transfers. Other relevant activities, such as for the surface treatment of substances, objects or products and activities related to the end of life of products, such as wastewater treatment plants, waste incineration and landfills, are also covered under the Protocol’s annexes.
- Pollutants listed in annex II to the Protocol on PRTRs and that are used in the production of plastic include:
 - 1,2-dichloroethane
 - Benzene
 - Brominated diphenylethers (PBDE)
 - Chloro-alkanes, C₁₀-C₁₃
 - Cyanides (as total CN)
 - Di-(2-ethyl hexyl) phthalate (DEHP)
 - Ethyl benzene
 - Ethylene oxide
 - Hydrogen cyanide (HCN)
 - Naphthalene
 - Nonylphenol ethoxylates (NP/NPEs) and related substances;
 - Organotin compounds (as total Sn)
 - Polychlorinated biphenyls (PCBs)
 - Vinyl chloride
 - Xylenes
 - Other substances (for example, national PRTR systems may include further substances of relevance to the topic, such as hexabromobiphenyl in the European PRTR or styrene in the Czech Integrated Pollutant Register.¹¹

¹⁰ The scope of the register and reporting requirements are provided through the Protocol’s articles 6 and 7, respectively. Its annexes I, II and III specify, respectively, activities, pollutants and disposal or recovery operations. See <https://unece.org/environment-policy/public-participation/prtrs-protocol-text>.

¹¹ See also Organisation for Economic Co-operation and Development (OECD), *Harmonized List of Pollutants for Global Pollutant Release and Transfer Registers (PRTRs)*, Series on Pollutant Release and Transfer Registers No. 26, ENV/CBC/MONO(2022)5, available at [www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV-CBC-MONO\(2022\)5%20&doclanguage=en](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV-CBC-MONO(2022)5%20&doclanguage=en) and www.oecd.org/chemicalsafety/pollutant-release-transfer-register/harmonised-list-reporting-sectors.xlsx. A list of substances associated with plastics covered in

- In addition to the above-listed reporting obligations for reporting by operators and owners (art. 7 (1)–(2) and (5)), any significant releases of hazardous substances from plastic products can be covered as releases from diffuse/small point sources in PRTRs (arts. 4 and 7 (4) and (7)–(8)).¹²

5. Regarding definitions used for the purposes of the Protocol, such as “pollutant”, “release”, “diffuse sources”, “waste” “hazardous waste” or “wastewater” (art. 2), it is important to note that they can be applied also in a plastic pollution context. These definitions are also relevant in view of the impact of plastic pollution on human health and the environment, which is recognized through both United Nations Environment Assembly of UNEP resolution 5/14 and the Protocol (through the definition of “pollution”).¹³ In addition, under the Protocol, the term “waste” includes substances or objects that are subject to regulation by national law (art. 2 (11)–(14)). This is particularly relevant to the development of national PRTRs, where regulation by national law related to waste, hazardous waste or wastewater may increasingly cover substances, materials or objects associated with plastic and plastic waste.

6. Data related to plastic pollution are collected and disseminated through different PRTR systems.¹⁴ Examples where PRTR data are analysed to improve the understanding of plastic pollution explicitly, however, remain scarce.¹⁵ One such example for chemical pollution related to releases of substances associated with the production and use of plastics is fluorinated polymers, such as those used for producing teflon (polytetrafluoroethylene (PTFE)) and other per- and poly-fluoroalkyl substances (PFASs).¹⁶ On this topic, a European

PRTR systems can be prepared based on input from Parties’ national focal points and stakeholders. Examples can be shared through the secretariat. Please contact the secretariat at prtr.survey@un.org.

¹² See also OECD, *Resource Compendium of PRTR Release Estimation Techniques Part II: Summary of Techniques for Non-Point (Diffuse) Sources*, Series on Pollutant Release and Transfer Registers No. 24, ENV/JM/MONO(2020)30; and OECD, *Resource Compendium of PRTR Release Estimation Techniques Part IV: Summary of Techniques for Estimating Releases of Chemicals from Products*, Series on Pollutant Release and Transfer Registers No. 20, ENV/JM/MONO(2017)2. Available at [www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono\(2020\)30&doclanguage=en](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono(2020)30&doclanguage=en) and

[www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono\(2017\)2&doclanguage=en](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=env/jm/mono(2017)2&doclanguage=en), respectively.

¹³ See also, for example, UNEP, “Plastic pollution: harmful chemicals in our plastics”, 9 June 2022, available at www.unep.org/news-and-stories/video/plastic-pollution-harmful-chemicals-our-plastics; and “Chemical pollution” in *The European environment – state and outlook 2020: Knowledge for transition to a sustainable Europe*, European Environment Agency (Luxembourg, Publications Office of the European Union, 2019).

¹⁴ This includes the national PRTR systems implementing the Protocol on PRTRs. Furthermore, an example for data dissemination for selected substances, including, for example, di-(2-ethyl hexyl) phthalate (DEHP) or styrene, can be found here Global Inventory of Pollutant Releases - OECD. Phthalates are primarily used as plasticizers in plastics and rubber and the plastic end product can contain as much as 40 per cent of these substances. Styrene is used in different plastics, rubber, insulation, fibreglass, pipes, automobile and boat parts, food containers and carpet backing. Furthermore, the Norwegian PRTR includes data on DEHP emissions (leaching) from products, see Norwegian Environment Agency, “Di-(2-ethylhexyl)phthalate (DEHP)”, available at www.norskeutslipp.no/en/Components/Emission/Di-2-ethylhexylphthalate/?ComponentType=utslipp&ComponentPageID=1218&SectorID=9999 and, for transfers of waste specifically for plastic waste, Norwegian Environment Agency “Plastic”, available at www.norskeutslipp.no/en/Components/Waste---household/Plastic/?ComponentType=avfall&WasteComponentPageID=290&SectorID=9105.

¹⁵ A list can be prepared based on input from Parties’ national focal points and stakeholders. Examples can be shared through the secretariat. Please contact the secretariat at prtr.survey@un.org.

¹⁶ European Commission, “PFAS: Overview”, available at https://ec.europa.eu/environment/chemicals/pfas/index_en.htm; European Chemicals Agency “Perfluoroalkyl chemicals (PFASs)”, available at <https://echa.europa.eu/hot-topics/perfluoroalkyl-chemicals-pfas>; United States Environmental Protection Agency “PFAS Explained”, 28 April 2022, available at www.epa.gov/pfas/pfas-explained; Gretta Goldenman and others, *The Cost of Inaction: A Socioeconomic Analysis of Environmental and Health Impacts Linked to Exposure to PFAS* (n.p., Nordic Council of Ministers, 2019), available at <http://norden.diva->

Environment Information and Observation Network (Eionet) report entitled *Fluorinated polymers in a low carbon, circular and toxic-free economy* states that: “Some aggregated information on emissions of fluorinated gases (F-gases) to air and of perfluorinated carbons (PFCs) to air, water and soil are covered by the European Pollutant Release and Transfer Register (E-PRTR) and have legal reporting obligations.”¹⁷ The report also discusses the challenges in using European PRTR data in that context. From that discussion, it can be concluded that existing data seem to be too generic regarding the different types of PFAS. In that context, a future treaty with the aim of ending plastic pollution will likely require more detailed data than are currently reported to PRTRs.

7. While important sources for plastic pollution from, for example, micro/nanoplastic particles, such as wastewater treatment plants,¹⁸ report to PRTR systems, the plastic particle component is currently not reported to PRTRs in a differentiated way; for example, plastic particles may be part of data collected and disseminated as particulate matter (PM₁₀) or releases from diffuse sources, including tyre wear.

III. Opportunities and synergies

8. Moves by the “PRTR community” to join in and inform the discussions on a treaty to end plastic pollution would provide a significant opportunity to explain and promote the usefulness of pollutant registers for reporting on plastic pollution to decision-makers and a broader public. Based on the experience in implementing PRTRs, plastic pollution is arguably a topic that is more easily understood by the general public and decision-makers than pollution from other toxic substances. In a plastic pollution context, pollution concerns are often addressed also from a consumer perspective. Scientists, journalists, civil society organizations, politicians and industry associations describe, in an exponentially rising number of papers and articles, the inherent connection between the population’s consumption and the sources for pollution throughout production, use and disposal of any product.¹⁹ Such a high level of attention to the topic from diverse stakeholders may also help to successfully address the long-standing challenge of achieving stakeholder engagement with PRTR data.

9. Furthermore, the life cycle approach envisaged in the new treaty takes into account a point already enshrined in PRTRs, namely, that preventing industrial pollution is decisive also for helping to reduce pollutant releases that follow later in the life cycle of a product.

10. Synergies and benefits gained from promoting PRTRs in the process of negotiating the new treaty could also include access for the “PRTR community” to new technology, such as the use of block-chains to connect products and brands with production facilities and to better link production and consumption.²⁰ Improving such connectivity would be useful in

portal.org/smash/get/diva2:1295959/FULLTEXT01.pdf; OECD, “Portal on Per and Poly Fluorinated Chemicals: About PFASS”, available at www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/aboutpfaas/; and OECD “Synthesis paper on per and polyfluorinated chemicals”, available at www.oecd.org/chemicalsafety/risk-management/synthesis-paper-on-per-and-polyfluorinated-chemicals.htm.

¹⁷ European Environment Information and Observation Network (Eionet) Technical Report – ETC/WMGE 2021/9, p.3, available at www.eionet.europa.eu/etcs/etc-wmge/products/etc-wmge-reports/fluorinated-polymers-in-a-low-carbon-circular-and-toxic-free-economy.

¹⁸ UNEP, “Microplastics in wastewater: towards solutions”, 20 March 2020, available at www.unep.org/news-and-stories/story/microplastics-wastewater-towards-solutions.

¹⁹ See, for example, Plastics Europe, “Plastics – the Facts 2021”, available at <https://plasticseurope.org/knowledge-hub/plastics-the-facts-2021/>; and International Pollutants Elimination Network, “Plastics”, available at <https://ipen.org/policy-area/plastics>.

²⁰ See, for example, White Paper on the technical applications of Blockchain to United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) deliverables (ECE/TRADE/C/CEFACT/2019/8); ECE, “Traceability for Sustainable Garment and Footwear”, available at <https://unece.org/trade/traceability-sustainable-garment-and-footwear>; Francesca Romana Rinaldi and others, “Traceability and transparency: enhancing sustainability and circularity in garment and footwear”, *Sustainability: Science, Practice and Policy*, vol. 18, No. 1 (February 2022), pp. 132–141; and Maria Teresa Pisani, “Enhancing Transparency and Traceability for Sustainable

delivering on one of the strategic purposes of PRTRs, namely to exert downward pressure on producers to reduce and prevent pollutant releases during production processes.

11. A future treaty to end plastic pollution would also add to related efforts already undertaken by Parties to existing multilateral environmental agreements that deal with issues related to chemical pollution. In addition to United Nations Environment Assembly of UNEP resolution 5/14, resolutions adopted by the United Nations Environment Assembly at its fifth session contain wording supportive of an integrated approach to implementing the different chemical multilateral environmental agreements and of the need to support tools for evidence-based decision-making. Notably, resolution 5/7 on sound management of chemicals and waste²¹ and resolution 5/8 on a science-policy panel to contribute further to the sound management of chemicals and waste and to prevent pollution²² address such aspects.

12. Paragraph 19 of resolution 5/7, for example, includes a request addressed to the Executive Director of UNEP to “seek views from Member States and other stakeholders ... on priorities for further work, building on existing measures and initiatives, and on potential further international action on the issues discussed in the *Assessment Report on Issues of Concern*, and in particular on those issues identified in the report entitled *Global Chemicals Outlook II – From Legacies to Innovative Solutions: Implementing the 2030 Agenda for Sustainable Development*”. The Aarhus Convention and the Protocol on PRTRs are listed in the *Assessment Report*²³ as key options on how, and on what topics opportunities exist, to coordinate and cooperate between the chemicals and waste cluster and other clusters. The *Global Chemicals Outlook II*²⁴ identifies significant implementation gaps in achieving the sound management of chemicals and waste. Gaps in the establishment of PRTRs are listed as a major gap in this context. Furthermore, while not referring to the Protocol on PRTRs, the *Global Chemicals Outlook II* mentions PRTRs as a solution to a variety of issues and in the following key findings:

(a) The extent of atmospheric releases of manufactured chemicals from industrial sources in lower-income countries is difficult to determine in the absence of national monitoring systems, such as national PRTRs, in many of these countries;

(b) The target set in the Strategic Approach to International Chemicals Management Global Plan of Action for PRTRs to be established in all countries by 2015 has not been achieved;

(c) Consider strengthening global Chemicals in Products approaches by strengthening capacities to estimate releases from products (e.g., through PRTRs);

(d) In some countries, PRTRs provide reliable data on chemical releases. However, there is no common list of chemicals, thresholds for reporting, or units by which the data can be aggregated or made available to the public. There is a significant opportunity to create a global PRTR, or an internationally harmonized network of national PRTRs.²⁵

IV. Way forward

13. Considering the above, Member States and stakeholders participating in the negotiation of a treaty to end plastic pollution may wish to consider and promote monitoring, reporting and easy access to information-related structures that could resemble PRTRs. These could be described as, for example, “plastic pollution release and transfer registers”. Such registers could replicate requirements already covered by the Protocol on PRTRs and be

Value Chains in Garment and Footwear”, presentation delivered at the thirty-sixth UN/CEFACT Forum: Agriculture, Fisheries and Agri-food Domain, online, April 2021. Available at www.genevaenvironmentnetwork.org/wp-content/uploads/2021/03/Maria_Teresa_Pisani_UNECE_The_Clothes_We_Wear.pdf.

²¹ UNEP/EA.5/Res.7.

²² UNEP/EA.5/Res.8.

²³ UNEP, *An Assessment Report on Issues of Concern: Chemicals and Waste Issues Posing Risks to Human Health and the Environment* (n.p., 2020).

²⁴ UNEP, 2019.

²⁵ *Ibid.*, pp. 94, 118–119, 266 and 306–307.

implemented through integration into national/regional PRTR systems. In this context, it would be important for Parties and other interested Member States to:

- Encourage Protocol national focal points to liaise on this issue with their counterpart national focal points involved in the negotiation of the treaty to end plastic pollution.²⁶
- Promote the Protocol's requirements and the replication of PRTRs in the negotiation of a treaty to end plastic pollution.
- Analyse how the existing national/regional PRTR reporting from production facilities and dissemination infrastructures could be made fit for managing data on plastic pollution specifically.
- Share experience on pollutant release data collection and dissemination, including the application of release estimation techniques, relevant to inform and shape reporting and dissemination tools under a future treaty and in particular where data from measurements and calculations may be difficult to obtain

²⁶ The governance structure of the Intergovernmental Negotiating Committee on Plastic Pollution, together with a list of current focal points, is available at www.unep.org/about-un-environment/inc-plastic-pollution/governance.