Reporting obligations that intersect the chemicals and waste and biodiversity clusters

Options for approaches and tools for joint reporting and action

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1. Introduction

The study aims to restore understanding about the connection between policies for addressing chemical pollution, the accumulation of waste and biodiversity loss and the need to continue pursuing an integrated approach across the obligations and activities of the chemicals and waste and biodiversity clusters of multilateral environmental agreements (MEAs). A half a century ago, a holistic approach for such policies was presented by Rachel Carson in her book Silent Spring that revealed the detrimental impacts of DDT to wildlife, birds, bees, agricultural animals, domestic pets, and even humans, which gave birth to the modern environmental movement.[1] However, over time, this integrated view was lost as the international community adopted a plethora of MEAs with each of them having a specific objective, scope, and set of obligations that are governed by their own decision-making bodies. This instilled a separation in the global environmental governance system for the development and follow-up of policies and activities for addressing biodiversity and chemicals and waste issues that will need to be brought together to address these challenges more effectively, and, ultimately, to help overcome the triple planetary crises.

1.1 Objective

The objective on the study is to identify tools and approaches to promote cooperation across the chemicals/waste and biodiversity clusters of multilateral environmental agreements (MEAs) based on a mapping of reporting obligations under the respective MEAs. The mapping is intended to reveal areas where the clusters intersect, using predominantly the obligations of the chemicals and waste cluster as an entry point for identifying means for enhancing synergies across the clusters. Although the study focuses specifically on reporting obligations, it not only identifies opportunities for joint reporting but also for joint implementation. The study is prepared on the basis that policy actions to mitigate the negative impact of chemical and waste on biodiversity have turned out to be rather limited so far, undoubtedly, due to limited knowledge of interlinkages and tools and approaches for creating co-benefits across the clusters.

The project is coordinated by UNEP's Law division, in consultation with the Chemicals and Health branch of UNEP and the MEA Secretariats. The study builds on and aims to expand existing knowledge base on the topic, focusing on hands-on and concrete joint solutions to inform participants of a workshop to be held in the third quarter of 2023 in Kigali, Rwanda, which brings together national MEA focal points across the chemicals and waste and biodiversity clusters.

The introduction provides a description of the objective and scope of the study, the methodology used to collect and verify information, and provides a background to existing studies and literature on the topic. Section 2 provides an overview of reporting obligations and schedules in MEAs. Section 3 outlines the outcome of the mapping exercise and section 4 outlines options for approaches and tools to support joint activities. Lastly, Annex 1 includes a compilation of the reporting obligations in the biodiversity and climate clusters with comments how they intersect with the chemicals and waste cluster.

[1] Carlson, R. (1962). Silent Spring. Houghton Mifflin Company

1.2 Scope

The mapping will focus on the MEAs in two thematic clusters:

1) Chemicals and waste cluster

- 1987 Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol)
- 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention)
- 2001 Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention)
- 2013 Minamata Convention on Mercury (Minamata Convention)

2) Biodiversity cluster

- 1971 Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)
- 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- 1979 Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- 1992 Convention on Biological Diversity (CBD)

In addition, the general reporting requirements are compiled for the following thematic clusters

3) Climate cluster

- 1987 Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol)
- 1992 United Nations Framework Convention on Climate Change (UNFCCC)
- 2015 Paris Agreement

*1.3 M*ethodology

The methodology includes two phases, as described below.

1. Mapping of reporting obligations

The mapping includes a review of MEA obligations focusing on those related to reporting, including information requests contained in associated reporting templates and supporting guidelines. The mapping will focus on core provisions of chemicals and waste MEAs endeavouring *to* identify how they intersect with the obligations of the MEAs in the biodiversity and climate clusters. Moreover, supporting provisions are examined. Provisions relating to institutional arrangements and final clauses are not examined. Box 1 clarifies different categories of treaty provisions.

Box 1. Categories of treaty provisions[2]

Core provisions: The acts, policies and/or laws that a treaty may authorize or require its parties to undertake or refrain from, to directly address the issue of concern.

Supporting provisions: May include rules about reporting, implementation (national action plans), monitoring, transparency, as well as technical and financial cooperation. May also include a common objective.

Institutional arrangements: May stipulate the establishment of a review body (Conference of the Parties) and subsidiary bodies, a secretariat or an organization, and/or a financing mechanism.

Final clauses: May include rules about the depositary, signature and ratification, participation, reservations, declarations, notifications, entry into force, registration and publication, settlement of disputes, amendment, revision and modification, duration, suspension, withdrawal and/or termination.

2. Identification of options on approaches and tools to promote joint action

The outcome of the mappings will be used as raw data to identify areas where the clusters intersect, and subsequently, to identify approaches and tools to promote cooperation between the national focal points in charge of implementation and reporting. Relevant MEA Secretariats will be consulted to obtain their inputs during the development of such tools and approaches, as appropriate.

1.4 Background

Recently, many studies have been done to understand ways to strengthen interlinkages between the two clusters of MEAs. This study builds on and complements existing literature on the topic, which is summarized in this section to provide helpful context for the mapping. The literature review focuses on documents prepared by UNEP and the Secretariats of the Basel, Rotterdam, Stockholm Conventions (BRS), and the Minamata Convention on Mercury, and other relevant partners, including the Nordic Council of Ministers (NCM). Thereafter, some academic papers are reviewed.

Input from UNEP

The second consultation workshop of biodiversity-related conventions on the post-2020 Global Biodiversity Framework (Bern II) was held 18 January to 2 February 2021.[3] While the workshop focused on opportunities for enhancing synergies among the biodiversity-related MEAs in the development of the post-2020 Global Biodiversity Framework (GBF), it is of importance due to the involvement of experts from both the biodiversity and chemicals and waste clusters. The final report of the workshop includes a dozen conclusions that are summarized below:

- Integrate **objectives** of relevant MEAs into the GBF (conclusion 1)

[2] GRID-Arendal (2022) Crafting an effective treaty on plastic pollution: Emerging fault lines in the intergovernmental negotiations. GRID-Arendal. Available online: https://bit.ly/3Yc6AWs

[3] UNEP (2021). Second Consultation Workshop of Biodiversity-related Conventions on the Post-2020 Global Biodiversity Framework (Bern II), 18 January to 2 February 2021. Available online: https://bit.ly/3V3BePy

- Include relevant indicators used by other conventions/processes in the GBF **indicator and monitoring framework** (conclusions 2-3)
- Facilitate coherent **review of implementation and reporting**, including by increasing clarity on how the objectives, roles and responsibilities of each MEA are integrated into the GBF (conclusions 4-5)
- Identify potential areas for cooperation on **means of implementation**, including **integrated approaches** (e.g. nature-based solutions) and **joint work programmes** on specific topics (conclusions 6-7)
- Enhance interaction among **national MEA focal points** through mechanisms that coordinate actions on SDGs and in the development/implementation of national biodiversity strategies and action plans (NBSAPs) (conclusions 8-10)
- Reflect the GBF in the **strategies and work plans** of conventions/processes (conclusions 11-12)

In 2022, UNEP published a revised **assessment on linkages with other clusters related to chemicals and waste management**.[4] The assessment explores interlinkages of the chemicals and waste cluster to seven relevant thematic topics, including biodiversity and climate change. The assessment highlights the need to mobilize the chemicals and waste MEAs in achieving biodiversity goals and outlines the following options for joint activities with the biodiversity cluster:

- Align relevant **targets** of the Kunming-Montreal post-2020 GBF frameworks, including jointly identify **priority chemicals of concern**
- Align relevant **indicators** of the adopted Kunming-Montreal post-2020 GBF frameworks, including identify **methodologies for monitoring**
- Consider collaboration and **joint research** on the following topics: 1) plastic pollution, including harmonized monitoring, reporting and assessment methodologies, 2) artisanal mining driven land degradation, 3) water birds and lead poisoning, 4) pesticides use and loss of pollinators, and 5) nutrient management

Moreover, the assessment identifies the following options for enhancing synergies with the climate cluster:

- Develop joint **monitoring** efforts to collect long-term to evaluate the impact of climate change on chemical releases
- Consider collaboration on joint **research** on the following topics: 1) climate change triggered chemical releases, 2) climate change impacts on contaminants in the ocean, 3) clean technologies, 4) waste and resource management as a contributor to climate change mitigation, and 5) climate change triggered channelling of fossil fuel use for plastic production

Input from the MEA Secretariats

In 2021, the BRS Conventions and the Minamata Convention published two technical reports on enhancing synergies among MEA clusters of relevance for chemicals and waste, namely biodiversity and climate change. These reports are summarized briefly below.

[4] UNEP (2022). Assessment of linkages with other clusters related to chemicals and waste management and options to coordinate and cooperate on areas of common interest, revised version. UN Doc. SAICM/IP.4/INF/3/Rev.1. Available online: https://bit.ly/3tv777V

The first report explores **interlinkages between the chemicals and waste and biodiversity**.[5] The report highlights that pollution is a key driver of biodiversity loss and describes how ecosystems and biodiversity are affected by mercury, POPs, pesticides and hazardous wastes and other waste that are controlled by the chemicals and waste MEAs. The report provides information how the chemicals and waste MEAs could contribute to the delivery of Aichi Biodiversity Target 8 and its successor in the GBF, such as through specific targets related to mercury air emission reductions, reduction of concentrations of POPs in environmental media, enhanced focus of the Rotterdam Convention on pesticides, and Implementation of the Basel Convention's plastic waste amendments. The report outlines the following thematic options for joint action across the clusters:

- Address **artisanal and small-scale gold mining (ASGM**) that is the single biggest source of mercury releases to soil
- Address **plastic pollution** that affects species through entanglement, ingestion, ghost fishing, transporting alien species, and interfere with soil functioning
- Address **e-waste** that contains hazardous materials that affect biodiversity
- **Address pesticides** to protect pollinators
- **Address illegal trade** of waste (e.g. e-waste, plastic waste) that affects biodiversity particularly in low- and middle-income countries
- **Share monitoring data and scientific research**, including shared communications/messaging

The second report explores **interlinkages and the potential for coordinated action on chemicals, waste and climate change**.[6] The report highlights that the chemicals sector is a significant contributor to global GHG emissions, being the single biggest industrial user of fossil fuels for both energy and feedstock purposes. Releases of GHGs and hazardous chemicals occur at all stages in the chemicals' life cycle. Also, the waste sector is a potential source of GHG emissions and hazardous chemicals. The report identifies seme options produce co-benefits or streamline activities across the clusters, summarized below:

- Use **Life Cycle Assessment (LCA)** tools to assess multiple environmental impacts of products, processes, or services
- Align **inventories** of GHG emissions and hazardous chemicals
- Use **Best Available Techniques (BAT) and Best Environmental Practices (BEP)** to minimize releases of both hazardous chemicals and GHGs

Input from the Nordic Council of Ministers

In 2022, by the Nordic Council of Ministers published a **Nordic report on strengthening collaboration and coordination between the chemical and waste and biodiversity clusters** was published.[7] The Nordic report outlines several options to enhance cooperation at national level, by the governing bodies of MEAs, and by organizations working at regional and/or global level to support implementation. The Nordic report provides 18 options for action organized in four groups, summarized below:

[5] BRS (2021a). Interlinkages between the chemicals and waste multilateral environmental agreements and biodiversity. Secretariats of the Basel, Rotterdam, Stockholm Conventions (BRS), and the Minamata Convention on Mercury. Available online: https://bit.ly/3hHTgbC

[6] BRS (2021b). Chemicals, waste and climate change: Interlinkages and potential for coordinated action. Secretariats of the Basel, Rotterdam, Stockholm Conventions (BRS), and the Minamata Convention on Mercury. Available online: https://bit.ly/3UVTfiC

[7] NCM (2022). Strengthening collaboration between biodiversity and chemicals and waste clusters. Nordic Council of Ministers, Copenhagen, Denmark. Available online: https://bit.ly/3TzGr09

1) Implementation mechanisms

- Ensure that **national MEA focal points** within and across MEA clusters know each other
- Ensure that **institutional mechanisms** convene representatives across the clusters
- Consider actions at the national level to increase **integration of implementation** across the clusters
- Consider actions at the international level to support increased cooperation across the clusters

2) Areas of common interest

- Cooperate on **communications** relating to the interconnections between the clusters
- Collaborate in the **identification of risks**
- Collaborate in development of **implementation processes** (e.g. legislation and regulations)
- Promote **research** in area prioritized by both clusters and disseminate results
- Initiate **cross-cluster collaborative projects** on common interest

3) Coordinating common needs and services

- Cooperate in **monitoring and reporting**, particularly on development and use of **indicators**
- Increase coordination of **capacity-building, technical/scientific cooperation & technology transfer**
- Share **guidance materials and information** relevant to the interface between the two clusters
- Collaborate in the development of an effective **science-policy interface** at all levels

4) International entry points to advance collaboration

- Promote the uptake of the Nordic report in the post-2020 processes
- Raise the profile of cross-cluster collaboration through **UNEA and other international fora**
- Strengthen **regional cooperation** to addressing impacts of chemicals and waste on biodiversity
- Collaborate in the context of a 'One Health' approach

Scholarly input

Academic literature provide insight to opportunities to enhance synergies across MEA clusters.

Groh et al. (2022) highlight policy actions proposed as a means to mitigate the negative impact of chemical pollutants on biodiversity have turned out to be rather limited so far.[8] Focus has been largely on pesticides, and less recognition has been given to anthropogenic chemicals that pose an environmental concern due to their toxicity and persistence in nature, including heavy metals, volatile air pollutants, polyaromatic hydrocarbons (PAHs), per- and polyfluoroalkyl substances (PFAS) and other industrial chemicals like polychlorinated biphenyls (PCBs) or the highly divergent group of plastics additives, as well as chemicals used in consumer products, food packaging, or pharmaceuticals.

[8] Groh, K., von Berg, C., Schirmer, K., Tlili, A. (2022). Anthropogenic Chemicals As Underestimated Drivers of Biodiversity Loss: Scientific and Societal Implications. Environmental Science & Technology 56: 707-710. https://doi.org/10.1021/acs.est.1c08399

Groh et al. (2022) outline the following options for collaborative action:

- Address all forms of chemical pollution in p**rotected areas** - not only pesticides
- Include chemical stressors on vulnerable populations in m**onitoring** to help ensure that they are not affected and have time to recover from peak emissions
- Involve environmental chemistry and toxicology experts in **research** to help evaluate the chemical component among the multitude of factors affecting biodiversity
- Acknowledge chemical pollution as a threat to biodiversity in **communication**

Against this backdrop, scholars highlight that an overemphasis on nutrients, pesticides and plastic waste in draft target 7 of the post-2020 Global Biodiversity Framework is insufficient for a full understanding and tackling of the relationship between chemical pollution and global biodiversity loss. Thus several other major groups of hazardous chemicals should be explicitly included in Target 7 (e.g. toxic metalloids and endocrine disrupting chemicals), accompanied with indicators and measures to reduce threats from anthropogenic chemicals to biodiversity.[9]

Blair & Mataraarachchi (2022) highlight that vast quantities of unaccounted GHG emissions originate from landfills, including methane, nitrous oxide and other trace gases.[10] Moreover, possible landfill leachates constitute a complex mixture of hazardous chemicals such as POPs (e.g. PFAS) and heavy metals that may contaminate groundwater. The researchers highlight the following main option for creating co-benefits between waste and climate policies:

- Reduce the volume of organic material entering landfills that causes significant GHG emissions in waste management

Summary of options for action identified in literature

Table 1 provides a summary of options for action identified in literature. For sake of simplicity, the language used in the literature examined has been formulated to concrete action-oriented options, and does not necessarily reflect the often imprecise formulation used in many instances to avoid giving too prescriptive recommendations.

[9] Mueller, L., Ågerstrand, M., Backhaus, T. et al. (2023). Policy options to account for multiple chemical pollutants threatening biodiversity. Environmental Science Advances. DOI: 10.1039/D2VA00257D

[10] Blair, J. & Mataraarachchi, S. (2021). A Review of Landfills, Waste and the Nearly Forgotten Nexus with Climate Change. Environments 8, 73. https://doi.org/10.3390/environments8080073

Table 1. Summary of options for action to enhance synergies among MEAs identified in literature analysed.[11]

Nexus	Core provisions	Supporting provisions (implementation)	Supporting provisions (follow-up)	Operational and institutional solutions
Within the biodiversity cluster		• Integrate **objectives** of relevant MEAs into the GBF (UNEP, 2021) • Identify potential areas for cooperation on **means of implementation**, including integrated approaches (e.g. nature-based solutions) and joint work programmes on specific topics (UNEP, 2021)	• Include relevant indicators used by other conventions and processes in the post-2020 **indicator and monitoring framework** (UNEP, 2021) • Facilitate coherent **review of implementation and reporting** (UNEP, 2021)	• Enhance interaction among national **MEA focal points** through mechanisms that coordinate actions on SDGs and in the development and implementation of NBSAPs (UNEP, 2021) • Reflect the GBF in the **strategies and work plans** of conventions and processes (UNEP, 2021)
Between the chemicals/ waste and biodiversity clusters	• Address **ASGM** that is the single biggest source of mercury releases to soil (BRS, 2021a) • Address **plastic pollution** that affects species through entanglement, ingestion, ghost fishing, transport alien species, and interferes with soil functions (BRS, 2021a) • Address **e-waste** that contains hazardous chemicals that may affect biodiversity (BRS, 2021a) • Address **pesticides** to protect pollinators (BRS, 2021a)	• Promote **research** in areas prioritized by both clusters and disseminate results (NCM, 2022) • Consider joint **research** on following topics (UNEP, 2022): - Plastic pollution, including harmonized monitoring, reporting and assessment methodologies - Artisanal mining driven land degradation - Water birds and lead poisoning, - Pesticides use and loss of pollinators - Nutrient management • Involve environmental chemistry and toxicology experts in **research** to	• Cooperate in **monitoring and reporting**, particularly on development and use of **indicators** (Harrison, 2022) • **Monitoring** should include chemical stressors on vulnerable populations to help ensure that they are not affected and have time to recover from peak emissions (Groh et al., 2020) • Align relevant **indicators** of the post-2020 frameworks, including identify **methodologies for monitoring** (UNEP, 2022)	• Ensure that national **MEA focal points** within and across MEA clusters know each other (NCM, 2022) • Ensure that **institutional mechanisms** convene representatives across the clusters (NCM, 2022) • Collaborate in the development of an effective **science-policy interface** at all levels (NCM, 2022) • Initiate **cross-cluster collaborative projects** on common interests (NCM, 2022) • Collaborate in development of **implementation processes** (e.g. legislation and regulations) (NCM, 2022)

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1. Blair, J. & Mataraarachchi, S. (2021). A Review of Landfills, Waste and the Nearly Forgotten Nexus with Climate Change. Environments 8, 73. https://doi.org/10.3390/environments8080073
2. BRS (2021a). Interlinkages between the chemicals and waste multilateral environmental agreements and biodiversity. Secretariats of the Basel, Rotterdam, Stockholm Conventions (BRS), and the Minamata Convention on Mercury. Available online: https://bit.ly/3hHTgbC
3. BRS (2021b). Chemicals, waste and climate change: Interlinkages and potential for coordinated action. Secretariats of the Basel, Rotterdam, Stockholm Conventions (BRS), and the Minamata Convention on Mercury. Available online: https://bit.ly/3UVTfiC
4. Groh, K., von Berg, C., Schirmer, K., Tlili, A. (2022). Anthropogenic Chemicals As Underestimated Drivers of Biodiversity Loss: Scientific and Societal Implications. Environmental Science & Technology 56: 707-710. https://doi.org/10.1021/acs.est.1c08399
5. NCM (2022). Strengthening collaboration between biodiversity and chemicals and waste clusters. Nordic Council of Ministers, Copenhagen, Denmark. Available online: https://bit.ly/3TzGr09
6. UNEP (2021). Second Consultation Workshop of Biodiversity-related Conventions on the Post-2020 Global Biodiversity Framework (Bern II), 18 January to 2 February 2021. Available online: https://bit.ly/3V3BePy/
7. UNEP (2022). Assessment of linkages with other clusters related to chemicals and waste management and options to coordinate and cooperate on areas of common interest, revised version. UN Doc. SAICM/IP.4/INF/3/Rev.1. Available online: https://bit.ly/3tv777V

Nexus	Core provisions	Supporting provisions (implementation)	Supporting provisions (follow-up)	Operational and institutional solutions
	• Address **illegal trade of waste** that may affect biodiversity (BRS, 2021a) • Address all forms of chemical pollution in **protected areas** (Groh et al., 2022) • Align relevant **targets** of the post-2020 frameworks, including jointly identify **priority chemicals of concern** (UNEP, 2022)	help evaluate the chemical component affecting biodiversity (Groh et al., 2022) • Increase coordination of **capacity-building, technical/scientific cooperation & technology transfer** (NCM, 2022) • Share **monitoring data and scientific research** (BRS, 2021a) • Cooperate on **communication** relating to the interconnections between the clusters (NCM, 2022) • Acknowledge chemical pollution as a threat to biodiversity in **communication** (Groh et al., 2020) • Share **guidance materials and information** relevant to the interface between the two clusters (NCM, 2022)		• Strengthen **regional cooperation** to address impacts of chemicals and waste on biodiversity (NCM, 2022) • Collaborate in the context of a **One Health** approach (NCM, 2022) • Raise the profile of cross-cluster collaboration through **UNEA and other international fora** (NCM, 2022) • Promote the uptake of the Nordic report in the **post-2020 processes** (NCM, 2022)
Between the chemicals/ waste and climate clusters	• Reduce the volume of organic material entering landfills that causes major GHG emissions in **the waste management** sector (Blair & Mataraarachchi, 2022) • Use **BAT/BEP** to minimize releases of both hazardous chemicals and GHGs (BRS, 2021b)	• Consider joint **research** on following topics (UNEP, 2021) - Climate change triggered chemical releases - Climate change impacts on contaminants in the ocean - Clean technologies - Waste and resource management as a contributor to climate change mitigation - Climate change triggered channelling of fossil fuel use for plastic production	• Develop joint **monitoring** efforts to collect long-term to evaluate the impact of climate change on chemical releases (UNEP, 2022) • Align **inventories** of GHG emissions and hazardous chemicals (BRS, 2021b)	• Use **LCA tools** to assess in multiple environmental impacts of products, processes, or services (BRS, 2021b)

2. Reporting obligations in MEAs

This subsection provides a summary of the main reporting obligations articulated in the convention text

2.1 Description of reporting obligations

Table 2 provides a summary of reporting obligations in MEAs examined. The reporting under MEAs is organized in varying ways, as summarized below.

- The reporting formats of the **biodiversity MEAs** requests information mainly on implementation of their strategic plans, which have been adopted by their COPs. Therefore, the questions are structured around their targets/objectives, and accompanied with indicators to facilitate follow-up. The reporting formats focus predominantly on descriptive information, while the indicators help to collect output-and outcome-oriented information. Moreover, CITES includes additional reporting on trade-related information.
- The reporting formats for the **chemicals and waste MEAs** follow the articles of their conventions, focusing both on qualitative information and quantitative data that consist of inventories of production, use and trade of listed chemicals. The reporting format of the Montreal Protocol is focused solely on the inventory data.
- The reporting formats used by the **UNFCCC and the Paris agreement** include the provision of descriptive information. Additionally, quantitative data is provided through the greenhouse gas inventories using methodologies developed by the IPCC, which are included in both reporting formats used.

Table 2. Reporting obligations, format and interval in MEAs analysed, including supporting material.

Convention	Obligation	Format	Interval	Supporting material
Stockholm Convention	**Art. 15: Reporting** 1. Each Party shall report to the COP on the measures it has taken to implement the provisions of this Convention and on the effectiveness of such measures in meeting the objectives of the Convention. 2. Each Party shall provide to the Secretariat: (a) Statistical data on its total quantities of production, import and export of each of the chemicals listed in Annex A and Annex B or a reasonable estimate of such data; and (b) To the extent practicable, a list of the States from which it has imported each such substance and the States to which it has exported each such substance. 3. Such reporting shall be at periodic intervals and in a format to be decided by the COP at its first meeting.	**National reports** requests information of the implementation of the convention, in line with the convention text.	The interval for **national reports** is four years. The next national reports are due 31 August 2026 (covering years 2022-2025).	Manual for national reports under Article 15 of the Stockholm Convention
Minamata Convention	**Art. 21: Reporting** 1. Each Party shall report to the COP, through the Secretariat, on the measures it has taken to implement the provisions of this Convention and on the effectiveness of such measures and the possible challenges in meeting the objectives of the Convention.	**National reports** requests information of the implementation of the convention, in line with the convention text	The interval for **national reports** is four years using the full format. Moreover, short reports must be submitted 2 years before the full report.	**UNEP/MC/COP.4/17** Draft guidance for completing the national reporting format for the Minamata Convention

Convention	Obligation	Format	Interval	Supporting material
	2. Each Party shall include in its reporting the information as called for in Articles 3, 5, 7, 8 and 9 of this Convention.		The next short reports are due 31 December 2023 (covering years 2021-2022) and next full reports are due 31 December 2025 (covering years 2021-2024).	**Decision MC-1/8** Reporting format (first reporting format covering 2017-2020)
Basel Convention	**Arti. 13: Transmission of Information** 3. The Parties, consistent with national laws and regulations, shall transmit, through the Secretariat, to the COP established under Article 15, before the end of each calendar year, a report on the previous calendar year, containing the following information: (a) Competent authorities and focal points that have been designated by them pursuant to Article 5 (b) Information regarding transboundary movements of hazardous wastes or other wastes in which they have been involved, including: (i) The amount of hazardous wastes and other wastes exported, their category, characteristics, destination, any transit country and disposal method as stated on the response to notification (ii) The amount of hazardous wastes and other wastes imported, their category, characteristics, origin, and disposal methods; (iii) Disposals which did not proceed as intended (iv) Efforts to achieve a reduction of the amount of hazardous wastes or other wastes subject to transboundary movement; (c) Information on the measures adopted by them in implementation of this Convention (d) Information on available qualified statistics which have been compiled by them on the effects on human health and the environment of the generation, transportation and disposal of hazardous wastes or other wastes (e) Information concerning bilateral, multilateral and regional agreements and arrangements entered into pursuant to Article 11 of this Convention (f) Information on accidents occurring during the transboundary movement and disposal of hazardous wastes and other wastes and on the measures undertaken to deal with them (g) Information on disposal options operated within the area of their national jurisdiction (h) Information on measures undertaken for development of technologies for the reduction and/or elimination of production of hazardous wastes and other wastes (i) Such other matters as the COP shall deem relevant.	**National reports** requests information of the implementation of the convention, in line with the convention text.	The **national reports** are submitted on an annual basis.	**Decision BC-14/10** Format for national reporting under the Basel Convention Manual for completing the format for national reporting under the Basel Convention
Monteral Protocol	**Art. 7: Reporting of data** 2. Each Party shall provide to the Secretariat statistical data on its production, imports and exports of each of the controlled substances 3. Each Party shall provide to the Secretariat statistical data on its annual production (as	The **data reports** focus on quantitative information regarding production, exports, imports, amounts destroyed, imports from	Annual data reports to the i are due by 30 September of each year and have to contain data related to the previous year.	**Annex III:** Article 7 data reporting forms and associated instructions and guidelines

Convention	Obligation	Format	Interval	Supporting material
	defined in paragraph 5 of Article 1) of each of the controlled substances listed in Annexes A, B, C, E and F and, separately, for each substance: amounts used for feedstocks, Amounts destroyed by technologies approved by the Parties, and Imports from and exports to Parties and non-Parties respectively	and exports to non-Parties, and emissions of controlled substances		**Appendix I:** Data reporting instructions and guidelines
CBD	**Art. 26: Reports** Each Contracting Party shall, at intervals to be determined by the COP, present to the COP, reports on measures which it has taken for the implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention	**National reports** focus on progress achieved towards national targets pursued, as well as the national contribution to the achievement of each global Aichi Biodiversity Target included in the Strategic Plan for Biodiversity 2022=2020	The interval for **national reports** is 4 years. The sixth national report was due 31 December 2018.	**Annex of Decision 8/27** Guidelines for the sixth national report, including reporting templates Resource manual for the sixth national report, including annotated reporting templates
CITES	**Arti. VIII: Measures to be taken by the Parties** 7. Each Party shall prepare periodic reports on its implementation of the present Convention and shall transmit to the Secretariat: (a) an annual report containing a summary of the information specified in sub-paragraph (b) of paragraph 6 of this Article; and (b) a biennial report[12] on legislative, regulatory and administrative measures taken to enforce the provisions of the present Convention. **Resolution Conf. 11.17 (Rev. CoP18)** URGES all Parties to submit an annual illegal trade report by 31 October each year covering actions in the preceding year	**Annual trade reports** request information on imports, exports, re-exports and introductions from the sea of specimens of all species included in Appendices I-III. **Annual illegal trade reports** request information on all seizures for violations involving CITES-listed species **Implementation reports** request information on implementation in accordance with the CITES Strategic Vision 2008-2020.	**Annual trade reports** (Art. VII, para 7a**)** are due 31 October (covering the preceding year) **Annual illegal trade reports** are due 31 October (covering the preceding year) Triennial **implementation reports** (Art. VII, para 7b) are due one year before each meeting of the COPs. To reflect the three-year COP cycle, the report covering 2018-2020 is due on 5 March 2021	Guidelines for the preparation and submission of CITES annual reports Implementation report format
CMS	**Art VII: The Conference of Parties** 5. At each of its meetings the Conference of the Parties shall review the implementation of this Convention and may in particular: (d) receive and consider any reports presented by the Scientific Council, the Secretariat, any Party or any standing body established pursuant to an agreement.	**National reports** requests information on implementation of the Strategic Plan for Migratory Species 2015-2023	Triennial **national reports** are due six months prior to COP meetings. COP-14 is held in October 2023, thus national reports are due in April 2023 . Similarly, reports for COP-13 were due 17 August 2019.	**SC52/Outcome 1** Format and guidance for 2023 CMS National Reports
Ramsar Convention	**Art 3.** 1. The Contracting Parties shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as-far as possible the wise use of wetlands in their territory 2. Each Contracting Party shall arrange to be informed at the earliest possible time if the ecological character of any wetland in its	**National reports** request information mainly on implementation of the Strategic Plan for 2016-2024 **Ramsar information sheets** require the provision of information	Triennial **national reports** prepared for meetings of the COPs **Ramsar information sheets** are required to be made available by Parties at intervals of no more than 6 years	**SC57/?** Reporting format for COP-14 national reports **Annex to resolution VI.1** Guidelines for describing and

[12] Biennial report has been amended to implementation reports with a three year cycle.

Convention	Obligation	Format	Interval	Supporting material
	territory and included in the List has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference. Information on such changes shall be passed without delay to the organization or government responsible for the continuing bureau duties specified in Article 8	on the change in ecological character of Ramsar sites		maintain the ecological character of listed sites, and guidelines for operation of the Montreux Record
UNFCCC	**Art. 12: Communication of information related to implementation** 1. In accordance with Article 4, paragraph 1, each Party shall communicate to the COP, through the secretariat, the following elements of information: (a) A **national inventory of anthropogenic emissions** by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, to the extent its capacities permit, using comparable methodologies to be promoted and agreed upon by the COP (b) A **general description of steps taken** or envisaged by the Party to implement the Convention; and (c) Any **other information** that the Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communication, including, if feasible, material relevant for calculations of global emission trends.	**National communications** include activities to implement the convention, including greenhouse gas emission inventories	**National communications** (NCs) for all countries every four years. **Biennial reports (BRs)** for developed countries and **biennial update reports (BURs)** for developing countries every two years.	**Decision 17/CP.8** Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention **Annex III of Decision 2/CP.17** UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention **Decision 18/CP.8** Revised 1996 IPCC Guidelines for National GHG Inventories
Paris Agreement	**Art. 13 ("Transparency framework")** 7. Each Party shall regularly provide the following information: (a) A national inventory report of anthropogenic emissions by sources and removals by sinks of GHGs, prepared using good practice methodologies accepted by the IPCC and agreed upon by COP serving as the MOP to this Agreement; and (b) Information necessary to track progress made in implementing and achieving its nationally determined contribution under Article 4. 8. Each Party should also provide information related to climate change impacts and adaptation under Article 7, as appropriate. 9. **Developed country Parties** shall, and other Parties that provide support should, provide information on financial, technology transfer and capacity-building support provided to developing country Parties under Articles 9, 10 and 11. 10. **Developing country Parties** should provide information on financial, technology transfer and capacity-building support needed and received under Articles 9, 10 and 11.	The scope of the **biennial transparency report (BTR)** is like the previous reports but has been expanded to include information on climate change impacts and adaptation and progress to achieve NDCs	**Biennial Transparency Reports (BTRs)** for all Parties. Parties must submit their first BTR and national inventory report, if submitted as a standalone report by 31 December 2024.	**Decision 18/CMA.1** Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement Revised 1996 IPCC Guidelines for National GHG Inventories

2.2 Reporting schedules in MEAs

Figure 2 provides an overview of reporting intervals in MEAs examined. The national reports with an interval of 3-4 years (CBD, Ramsar and CMS national reports and UNFCCC national communications) do not accurately spell out the reporting period but ask to report on activities occurred prior to the submission of the national report. Whereas shorter report with an interval of 1-2 years commonly specify that the reports need to include activities that occurred before 31 December of the preceding year. For the UNFCCC and Paris Agreement, the Biennial Transparency Reports (PTRs) will supersede the Biennial (Update) Reports (BUs/ BURs) after 31 December 2024. Moreover, Parties may submit their National Communication (NC) and BTR as a single report, enabling to streamline reporting.

	2017	2018	2019	2021	2022	2023	2024	2025	2026	2027
Stockholm Convention National Reports	4 years				4 years				4 years	
Minamata Convention National Reports	Short report		Full report		Short report		Full report		Short report	
Basel Convention National Reports	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year
Montreal Protocol Data Reports	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year
CBD National Reports	4 years		4 years				4 years			
CITES Annual Trade Reports	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year
CITES Annual Illegal Trade Reports	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year
CITES Implementation Reports	3 years		3 years		3 years			3 years		
CMS National Reports	3 years			3 years			3 years			3 years
Ramsar Convention National Reports	3 years		3 years		3 years			3 years		
UNFCCC National Communications	4 years		4 years			4 years				4 years
UNFCCC Biennial (Update) Reports	2 years		2 years		2 years		2 years	<-Reporting ends		
PA Biennial Transparency Reports				Reporting starts->		2 years		2 years		2 years

Figure 2. Reporting intervals under the MEAs during 2017-2027

2.3 Reporting obligations in the chemicals and waste MEAs

The reporting obligations in the chemicals and waste MEAs, as outlined in the reporting formats, follow the obligations articulated in their convention texts. The obligations can be grouped in two categories: core provisions specific to chemicals and waste management, and supporting measures, as explained below.

1) Core provisions specific to the chemicals and waste management

Core provisions in the chemicals and waste cluster include control measures along the life cycle of chemicals and waste. The core provisions are central to protecting biodiversity, including species and ecosystems, as they aim to prevent the production and use of hazardous chemicals across the life cycle, as well as ensure environmentally sound waste management, aiming to prevent emissions and releases of hazardous chemicals and discharge of hazardous waste and other waste that may result in contamination of the environment. To this end, Figure 1 illustrates the scope of control measures in the chemicals and waste MEAs. The core provisions in the chemical and waste cluster focus on the following:

- Control of extractive measures
- Control of production and use of chemicals
- Control of emissions and releases
- Waste management
- Remediation of contaminated sites
- Trade controls

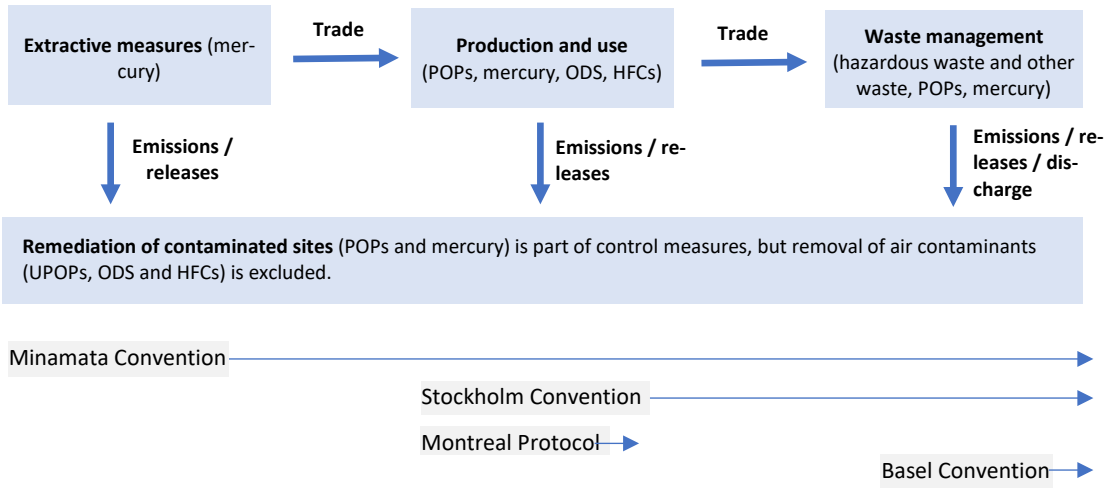

Figure 1. Scope of control measures in chemicals and waste MEAs.

2) Supporting provisions included in the chemicals and waste cluster

Supporting provisions are relatively similar across MEA clusters, focusing on general measures for both implementation and follow-up. The supporting measures in the chemical and waste cluster include similarities with those in other clusters (biodiversity and climate), due to their more procedural nature, and provide another avenue to seek cross-cluster synergies. The supporting provisions in the chemicals and waste cluster include the following measures:

- Transparency
- Information sharing
- National action plans

- Research
- Education and awareness raising
- Monitoring and indicators
- Reporting
- Inventories

Tables 3-6 provide information of reporting obligations under the Stockholm Convention, Minamata Convention, Basel Convention and Montreal Protocol. The most recent reporting formats have been used to summarize information requests therein. The information requests are grouped to core provisions and supporting provisions, as they provided very different ways of enhancing synergies, with the former providing a way for taking joint measures on the ground, and the latter providing an avenue for considering procedural issues from joint perspective. While the linkage to biodiversity and ecosystem services is evident, as the chemicals and waste conventions have been developed to protect the environment along human health, direct reference to biodiversity has been included only in reporting requirements under in the Minamata Convention regarding research, development and monitoring, stipulated in Article 19 of the Convention (shown with red font).

Table 3. Reporting obligations outlined in the reporting format of the Stockholm Convention.

Obligation	Information requests in the reporting format
1. Core provisions	
Unintentional production and use (Art. 3)	• Information on Legal/administrative measures taken to reduce or eliminate the use of substances listed in Annex A and B of the Convention
Register of specific exemptions (Art. 4)	• Information on registration for specific exemptions listed in Annex A or Annex B or for acceptable purposes listed in Annex B.
Unintentional production (Art. 5)	• Information on the status of the inventory of UPOPs • Information on the status of the review of law/policy evaluation, as well as actions taken to promote BAT/BEP to manage releases of UPOPs
Stockpiles and wastes (Art. 6)	• Information on the status of strategies to identify POP stockpiles, wastes, and contaminated sites, as well as data on quantities and number of sites identified.
Chemicals production, export, import, DDT (Art. 15)	• Data on the production, import, export of POPs listed in Annex A and B and the status of transmission of a report on the production and use of DDT.
PCB	• PCB stockpiles and wastes (information on the implementation of strategies to identify stockpiles, products and articles in use, wastes and sites that contain or are contaminated with PCB, as well as measures taken to promote their sound management) • PCB measures and management (information on measures taken to manage PCB and their wastes).PCB destruction (information on quantities of PCB destroyed in an environmentally sound manner either in a local facility as well as quantities that are imported or exported for environmentally sound disposal)
PFOS	• Progress made in eliminating PFOS, its salts and PFOSF, including information on production and quantities used for specific exemptions or acceptable purposes, and information on alternatives.
2. Supporting provisions	
Implementation plans (Art. 7)	• Information on the status of national implementation plans (NIP) and their funding.
Information exchange (Art. 9)	• Information on possible establishment of an information exchange mechanism.
Public information, awareness and education (Art. 10)	• Measures taken to inform, educate and raise awareness of the public and stakeholders on POPs, their effects and their sound management.

Obligation	Information requests in the reporting format
1. Core provisions	
Research, development and monitoring (Art. 11)	• Actions taken to support research, development of alternatives, and monitoring of POPs.
Technical Assistance (Art. 12)	• Technical assistance received or given, including estimated total value of that assistance.
Financial resources and mechanisms (Art. 13	• Information of the financial resources allocated to implement the Convention, • Information on supporting implementation in developing country Parties and Parties with economies in transition.

Table 4. Reporting obligations outlined in the reporting format of the Minamata Convention

Theme	Information requests in the reporting format
1. Core provisions	
Mercury supply sources and trade (Art. 3)	• Operation of primary mercury mines • Identification of individual stocks of mercury • Availability of excess from the decommissioning of chlor-alkali facilities • Import from non-Parties
Mercury-added products (Art. 4)	• Prohibition and restriction of manufacture, import/export of mercury-added products
Manufacturing processes in which mercury or mercury compounds are used (Art. 5)	• Facilities that use mercury • Prohibition and restriction of mercury in manufacturing processes • Restriction of mercury in processes
Artisanal and small-scale gold mining (ASGM) (Art. 7)	• Reduction or elimination of the use of mercury in, and the emissions and releases to the environment of mercury from ASGM • Development and implementation of an ASGM national action plan
Emissions (Art. 8)	• Identification of emissions • Use of BAT/BEP to control and reduce emissions • Measures to reduce emissions • Inventory of emissions • Development of a national plan to control emissions
Releases (Art. 9)	• Measures to address releases • Inventory of releases
Environmentally sound interim storage of mercury (Art. 10)	• Measures to ensure environmentally sound interim storage of non-waste mercury
Mercury wastes (Art. 11)	• Environmentally sound management of mercury waste • Facilities for final disposal of mercury waste
Contaminated sites (Art. 12)	• Development of strategies for identifying and assessing sites contaminated by mercury
2. Supporting provisions	
Financial resources and mechanism Art. 13)	• Provisioning of financial resources to implement the convention • Provisioning of financial resources to support developing countries
Capacity-building, technical assistance and technology transfer (Art. 14)	• Provisioning of capacity building and technical assistance • Facilitation of environmentally sound alternative technologies
Health aspects (Art. 16)	• Provision of information to the public on exposure to mercury • Other measures to protect human health
Information exchange (Art. 17)	• Facilitation of the exchange of information
Public information, awareness and education Art. 18)	Provision of information to the public on: • Health and environmental effects • Alternatives to mercury • Results of research, development and monitoring activities • Activities to meet obligations under the convention

Theme	Information requests in the reporting format
1. Core provisions	
Research, development and monitoring (Article 19)	Cooperation to develop and improve: • Inventories of emissions and releases • Modelling and monitoring of levels of mercury in vulnerable populations and in environmental media, including biotic media such as fish, marine mammals, sea turtles and birds, as well as collaboration in the collection and exchange samples • Assessments of the impact of mercury and on human health and the environment • Harmonized methodologies for the above activities • Information on the environmental cycle, transport (including long-range transport and deposition), transformation and fate of mercury in a range of ecosystems • Information on commerce and trade in mercury • Information and research on the technical and economic availability of mercury-free products and processes and on BAT/BEP to reduce and monitor emissions/releases

Table 5. Reporting obligations outlined in reporting format of the Basel Convention.

Themes	Information requests in the reporting format
1. Core provisions	
Measures to implement and enforce the convention	Articles 4.4, 9.5 and 13.3(c))
Wastes controlled for the purpose of transboundary movement	• National definition of waste (Articles 2.1 and 13.3(c)) • National definition of hazardous (Articles 3.1, 13.2(b) and 13.3(c))
Restrictions on and conditions for transboundary movement of hazardous wastes and other wastes	• Amendment to the Basel Convention (Decision III/1) (Articles 13.2(c), 13.2(d) and 13.3.(c)) • Restrictions on the export of hazardous wastes and other wastes for final disposal (Annex IV A) (Articles 13.2(d), 13.3(c) and 13.3(i)). • Restrictions on the export of hazardous wastes and other wastes for recovery (Annex IV B) (Articles 13.2(d),13.3(c), 13.3(i)) • Restrictions on the import of hazardous wastes and other wastes for final disposal (Annex IV A) (Articles 13.2(c), 13.3(c) combined with 4.1(a), 13.3(i))) • Restrictions on the import of hazardous wastes and other wastes for recovery (Annex IV B) (Articles 13.2(c), 13.3(c) combined with 4.1(a), 13.3(i))) • Restrictions on the transit of hazardous wastes and other wastes through your country (Article 13.3(i))
Control procedure of the transboundary movement of waste	• Use of Notification and Movement document forms of the Basel Convention in the control of transboundary movement of hazardous wastes and other wastes (Article 6, Annex V (Decision VIII/18) combined with Article 13.3(c), 13.3(i)) • Information requirements in addition to those listed in Annex V of the Basel Convention (Article 6, 4(11) combined with Article 13.3(i))
Reduction and/or elimination of the generation of hazardous wastes and other wastes	• Development of technologies for the reduction and/or elimination of the amount of hazardous wastes and other wastes generated: (Articles 4.2(a) and 13.3(h))
Reduction of the amount of hazardous wastes and other wastes subject to the transboundary movement	• Reduction of the amount of hazardous wastes and other wastes subject to the transboundary movement (Articles 4.2(d) and 13.3(b)iv)
2. Supporting provisions	
Effect on Human Health and the Environment	• Compiling and making available statistics (e.g. studies, reports) on the effects of hazardous wastes and other wastes on human health and the environment (Article 13.3(d))
Agreements or arrangements in force	• Information concerning bilateral, multilateral or regional agreements or arrangements concluded pursuant to Article 11 (Articles 11.2 and 13.3(e))

Themes	Information requests in the reporting format
Final disposal options	• information on disposal options or sources from which such information, including on facilities, could be obtained (Articles 4.2(b) and 13.3(g))
Recovery options	• Information on recovery options or sources from which such information, including on facilities, could be obtained (Articles 4.2(b) and 13.3(g))
Export of wastes	• Total amount of hazardous waste and other waste exported (Article 13.3(b) i)
Import of wastes	• Total amount of hazardous waste and other waste imported (Article 13.3(b) ii)
Disposal anomalies	• Information about disposals which did not proceed as intended (Article 13.3(b) iii)
Accidents	• Information on occurrence if accidents during the transboundary movement and disposal of hazardous wastes and other wastes (Article 13.3(f))
Illegal traffic	• Cases of illegal traffic which have been closed in the reporting year (Articles 9.5, 13.3(c), 13.3(i) and COP decisions related to illegal traffic)

Table 6. Reporting obligations outlined in the reporting format of the Montreal Protocol.

Obligation	
1. Core provisions	
Imports	• Quantity of imports of controlled substances listed in Annexes A, B, C, E and F
Exports	• Quantity of exports of controlled substances listed in Annexes A, B, C, E and F
Production	• Quantity of production of controlled substances listed in Annexes A, B, C, E and F
Amounts destroyed	• Quantity of destruction of controlled substances listed in Annexes A, B, C, E and F using approved destruction technologies
Imports from and exports to non-Parties	• Quantity of trade to non-Parties of controlled substances listed in Annexes A, B, C, E and F
Emissions of controlled substances	• Quantity of emissions of HFC-23 resulting from production of Annex C Group I or Annex F substances

3. Outcome of the mapping of obligations

The reporting formats of the biodiversity-related MEAs refer frequently either directly to indirectly to pollution, including chemicals and waste. Of particular relevance is draft target 7 of the Kunming-Montreal post-2020 Global Biodiversity Framework (GBF), which refers to pollution in the form of nutrients, pesticides and plastic waste, and Target 7 of the CMS Strategic Plan for 2015-2023 that refers to pollution as one of the main drivers of biodiversity loss.

3.1 CBD

The GBF was adopted in CBD COP-15 held 7-19 December 2022 in Monteral, Canada. This analysis shows that 13 out of the 21 proposed targets are directly/indirectly relevant for chemicals and waste. [13] Of particular relevance is Target 7 that refers to pollution in the form of nutrients, pesticides and plastic waste. Table 7 provides a summary of the draft GBF targets of relevance to chemicals and waste MEAs. Examples from national reporting derive from the 6th national reports of the CBD. The examples have been allocated to new draft GBF targets, although they have been reported under the Aichi Biodiversity Targets.
The examination of national reports shows that pollution, in particular generation of municipal waste and hazardous waste, including industrial waste, in particular mining waste, are frequently mentioned by low- and middle-income countries. Moreover, problems related to uncontrolled discharge of wastewater is commonly mentioned. Hazardous chemicals are most frequently mentioned in conjunction with use of agrochemicals, but also other chemicals (e.g. heavy metals and pharmaceuticals) are mentioned in many reports. Challenges and measures related to POPs and mercury are mentioned in several national reports, but they may also be embedded in challenges reported about pesticides and toxic metalloids. The sixth national report from Vietnam provides a glimpse to the scale of chemicals and waste challenges faced by low- and middle-income countries with far reaching implications for biodiversity:

> *"there are currently 787 municipalities that are discharging 3,000,000 m3 of wastewater daily - this is mostly untreated. More than 100,000 tonnes of plant protection chemicals are used in the country every year. In addition, more than 23 million tonnes of domestic waste, 7 million tonnes of industrial solid waste and 630,000 tonnes of hazardous waste are being discharged annually. There are 458 landfill sites, including 337 unhygienic ones; and more than 100 small-scale domestic waste incinerators, which have the potential to generate dioxins and furans.[14]"*

[13] CBD (2021). First draft of the Global Biodiversity Framework. UN Doc. CBD/WG2020/3/3. Available online: https://bit.ly/3WfYWbW
[14] The Ministry of Natural Resources and the Environment of Vietnam (2019). The sixth national report to the Convention on Biological Diversity. Available online: https://bit.ly/3PvGGJa

Table 7. Draft targets of the post-2020 GBF to be used as a basis for reporting that directly or indirectly intersect with chemicals and waste.

Draft targets	Relevance to chemicals and waste	Examples from national reporting
Target 1 : Promote **integrated spatial planning**	Integrated spatial planning can help to improve nutrient and pesticide management and decrease their run-off to protected areas and/or other water bodies, where they cause harm to the aquatic environment.	• Rwanda has adopted an Integrated Water Resources Management Plan aiming to improve water quality/minimize pollution from agricultural chemicals washed from away from farmlands (national report, p. 6).
Target 2: Enhance **restoration**	Directly linked to the remediation of contaminated sites under the Minamata convention and the Stockholm Convention.	• Montenegro highlights that industrial waste has contaminated several sites, two of which are envisaged for remediation (national report, p. 23). • Serbia has established a database of contaminates sites, including POPs and heavy metals, to implement prevention and remediation measures. So far, 52 of 709 potentially contaminates sites have undergone rehabilitation (national report, p. 24). • Vietnam has identified 240 sites contaminates with pesticides, including POPs at high or very high levels. Vietnam also raises concern of new POPs, including PBDE, PFOS, and HBCD, found in sedimentation dust (national report, p. 92).
Target 3: Increase area of **protected areas**	Protected areas may indirectly help to reduce chemical pollution and mitigate extraction of raw materials, including ASGM under the Minamata Convention.	• Namibia has banned the use of plastic bags in protected areas (national report, p. 47).
Target 4: Ensure **recovery and conservation** of species and genetic diversity, including ex-situ conservation	Recovery and conservation of species will benefit from biomonitoring to ensure chemical pollutants do not exceed critical thresholds for species survival.	• Niue reports that it has done an inventory of POPs contaminated sites, in accordance with the Stockholm Convention (national report, p. 36).
Target 5: Ensure legal, safe and sustainable **harvesting and trade** of wild species	Trade intersects with all the chemicals and waste conventions. Enforcement of trade controls can be improved by strengthening capacities of custom officer across the clusters.	• Samoa reports on measure taken to screening of all imported chemicals entering the country to ensure registration and compliance with chemicals and waste MEAs (national report).
Target 6: Control or eradicate **invasive alien species**	Many hazardous chemicals are used to eradicate invasive alien species, in particular weeds, that could be substituted with safer alternatives or with biological control options.	• Pakistan has taken action to eradicate Parthenium, an invasive weed species, by helping farmers to adopt integrated and sustainable practices that enable to address the weeds without using toxic chemicals (national report, p. 42). Similarly, Niue highlights that many toxic chemicals are used to eradicate invasive alien species causing harm to the environment (national report, p. 28).
Target 7: Reduce **pollution** from all sources (nutrients, pesticides, plastic waste)	The new targets mention "pollution from all sources" and highly hazardous chemicals in addition to pesticides, plastics and nutrients. Which is interpreted in a much	• Australia is developing a National Standard for the environmental risk management of industrial chemicals (national report, p. 87). • Austria highlights the need to upgrade wastewater treatment plants to enable them to reduce harmful substances in wastewater (national report, p. 25).

Draft targets	Relevance to chemicals and waste	Examples from national reporting
	broader perspective with relevance as well for other POPs, heavy metals etc.	• Austria has the develop a National Action Plan on Plant Protection Product to reduce risks and impacts of pesticides on human health and the environment (national report, p. 25). • Micronesia aims to provide an environmentally safe mechanism to prevent or eliminate the use and abuse of hazardous chemicals, including develop and implement correct storage and disposal programs to prevent the degradation of the environment and loss of biodiversity (national report, p. 8). • Sant Vincent and the Grenadines reports on the development of a comprehensive chemicals management policy and legislation, and disposal of obsolete pesticides (national report, p. 57). • Suriname provides compresence information on compliance with all the chemicals and waste MEAs (national report, p. 79-80). • Tonga reports on POPs emissions, highlighting that the major source constitutes of leakage of PCB-contaminated oil from transformers (national report, p. 172). • UK reports on monitoring data on water pollution and marine pollution, including levels of PCB, lindane and heavy metals (national report, p. 144).
Target 10: Ensure sustainable **agriculture, aquaculture, and forestry**	Eliminating or minimising the use of harmful chemicals, in particular POPs, is essential for ensuring sustainable agriculture and forestry. This may include, inter alia, organic farming where the application of synthetic chemicals, like fertilisers, pesticides, hormones and growth regulators, are reduced and eliminated,	• In 2001, Brazil has launched an integrated production program, which encompasses over 60 food production systems that has helped involved farmers to reduce the use of agricultural chemicals with 80% (national report, p.87). • North Macedonia uses the areas under organic farming as an indicator for sustainable agriculture (national report, p. 201). • Somalia promotes integrated pest management endeavouring to help achieve a 30% reduction in pesticide use (national report, p. 34). • Thailand promotes agroforestry, natural based pest control and chemical free farming production (national report, 25). • Vietnam is developing sustainable aquaculture, including an organic shrimp certificate, with the aim to phase out the use of chemicals and antibiotics (national report, p. 89).
Target 11: Enhance/maintain **nature's contributions**	Maintaining nature's contributions, in particular good water quality, requires sound management of chemicals and waste. For instance, many water bodies are heavily polluted by PFAS, regulated by the Stockholm Convention.	• Uganda has started to monitor the impact of agrochemicals on selected pollinators, since there is no information available in the country regarding the impact of agrochemicals on pollinators which are important for agricultural production (national report, p. 204).
Target 14: **Integrate biodiversity** into policies, strategies and planning processes	Integrating biodiversity more firmly to chemical policies and strategies will be important to safeguard biodiversity. This can be best achieved by acknowledging chemicals and waste in context of designing biodiversity policies, including developing NBSAPs.	• Montenegro reports that less than one-fifth of waste water is treated before being discharged into nature and that a large portion of municipal waste is disposed to illegal dumpsites (national report, p. 23). Similarly, Pakistan reports that waste water from all major cities is discharged directly into natural streams and rivers (national report, p. 9). •

Draft targets	Relevance to chemicals and waste	Examples from national reporting
Target 15: Increase sustainability of **businesses** from extraction to disposal	Extractive industries, the gas and oil industry, the chemical and petrochemical industry, retailers, and waste operators need to assess and minimize their impacts on biodiversity.	• Cambodia highlights that mining and the oils sector requires high quantities of toxic chemicals that pollutes waters and soil (national report, p. 249). • Papua New Guinea highlights that its income derives largely from mines, many of which have low-grade ore deposits, that results in processed waste which is dumped into rivers and/or the ocean (national report, p. 33). • Sierra Leone reports that mining and the dumping of mine tailings is rendering many viable habitats ecologically redundant. This also includes artisanal mining of gold and diamonds that is destroying the ecology of floodplains, estuarine, river and streams systems (national report, p. 143). • Suriname has allowed small-scale goldmining locally, but restricted the use of mercury (national report, p. 28).
Target 16: Reduce **waste** and enable responsible choices based on access to information	The activities of the Basel Convention support reduction of waste and thereby, contribute to preventing biodiversity loss.	• Malawi refers to its Waste Transfer Station Project to allow for proper disposal of waste, sorting, reusing and recycling to ensure waste does not find its way into water bodies with vulnerable ecosystems (national report, p. 75). • The Marshall Islands has developed legislation to ban single-use plastics and Styrofoam which has resulted in a cleaner environment (national report, p. 69). • Micronesia has included an objective on solid wastes and sewage aiming to provide an environmentally safe mechanism for the collection, storage and disposal of solid wastes and sewage within the nation to prevent further degradation of the environment and loss of biodiversity (national report, p. 8). • Pakistan has taken action to save the sea turtles and their nesting habitat on Karachi coast by reducing waste through the establishment of a community managed waste collection and recycling system (national report, p. 40).
Target 18: Undertake **fiscal reforms**	Directly linked to fiscal reforms promoted by SAICM, including subsidy reforms focusing on removing of subsidies on hazardous agrochemicals and using subsidies to help transition to the use of safer agrochemicals	• Bangladesh strives to reduce the impacts of harmful incentives by taking measures to increase the price of N-fertilizer and decreasing the same for P-fertilizer (national report, p. 4). • Belgium grants subsidies for agricultural activities which take biodiversity into account, including use of manual/mechanised systems instead of chemicals (national report).
Target 20: Use **traditional knowledge**	In the context of agriculture, traditional knowledge usually concerns application of special old methods of plants growing and livestock breeding. In plant production, this often assumes traditional methods of plants protection against diseases or fertilizing without chemicals use.	• North Macedonia highlights the need to carry out surveys of the state and the trends of traditional practices related to natural resources and establish a database to support their promotion (national report, p. 45). • Tonga promotes traditional Tongan farming systems in rural and vulnerable communities aiming for minimum mechanization and use of agri-chemicals by (national report, p. 26).

3.2 CITES

Four out of 16 objectives included in the CITES Strategic Vision for 2008-2020 are relevant for chemicals and waste MEAs. However, none of the objectives refer directly to chemicals and waste and, consequently, the implementation reports are disconnected from objectives and obligations of the chemicals and waste MEAs. However, CITES is a trade-related convention and, thereby, closely linked to Basel Convention, the Stockholm Convention, Minamata Convention and Monteral Protocol with trade provisions. This may open opportunities for joint reporting and/or action, including sharing of best practices. Table 8 provides a summary of CITES objectives of relevance to chemicals and waste. Examples from national reporting derive from CITES implementation reports for 2018-2020.

Table 8. Objectives of the CITES Strategic Vision for 2008-2020 used as a basis for reporting (implementation reports) that indirectly intersect with chemicals and waste.

Objective	Relevance to chemicals and waste MEAs	Examples from national reporting
Objective 1.6 Parties cooperate in managing shared wildlife resources.	CITES-listed species affected by POPs and mercury could benefit from recovery plans mentioned in questions 1.6.2a. (Question 1.6.2a: Do you have any cooperative management plans, including **recovery plans**, in place for shared populations of CITES-listed species?)	• Australia has developed a recovery plan for marine turtles for 2017-2027 that aims to, inter alia, minimize chemical and terrestrial discharge to the marine environment, including POPs that is linked to reduced hatchling condition and decreased immune response in turtles, as well as heavy metals (national report, p. 14).
Objective 1.7 Parties are enforcing the Convention to reduce **illegal wildlife trade**.	The reporting format refers explicitly to enforcement of wildlife trade. However, enforcement agencies, in particular customs control agencies could benefit from a joint approach for implementing trade-related provisions of CITES and the chemicals and waste MEAs that have trade restrictions, including the Basel Convention, the Minamata Convention, the Stockholm Convention and the Monteral Protocol.	No examples found
Objective 2.2: Sufficient resources are secured at the national and international levels to ensure compliance with and implementation and enforcement of the Convention.	The introduction of **user fees and incentive measures**, including the removal of harmful incentives, are included in questions under indicators 2.2.3 and 2.2.4, that are closely linked to cost recovery and other economic instruments promoted under SAICM. Questions 2.2.3a-d and 2.2.4a-b are relevant, although they specifically focus on fees and inventive measures related to CITES implementation that are distinct from those used for sound management of chemicals and waste.	No examples found
Objective 3.3: Cooperation with relevant international environmental, trade and development organizations is enhanced.	Enhancing cooperation with focal points of other MEAs as mentioned in question 3.3.1a is relevant for MEAs in the chemicals and waste cluster, although they are not explicitly mentioned in the reporting format. Such cooperation could benefit from cross-fertilization of best practices across the clusters, including on trade and enforcement-related issues.	No examples found

Objective	Relevance to chemicals and waste MEAs	Examples from national reporting
	(Question 3.3.1a: Have measures been taken to achieve coordination and reduce duplication of activities between the national CITES authorities and national focal points for other MEAs (e.g. the other biodiversity-related conventions: CBD, CMS, ITPGR, Ramsar, WHC) to which your country is party?)	

3.3 CMS

Eight out of the 16 targets included in the CMS Strategic Plan for 2015-2023 are directly or indirectly relevant for chemicals and waste. Target 7 is of particular relevance as it asks to report on drivers of biodiversity loss, including other pollution, which includes chemicals. However, the reporting format does not refer to chemicals in any other instances, which may be due to the absence of a specific resolution on chemical pollution, whereas, dedicated resolutions have been adopted for addressing oil pollution, plastic pollution and light pollution. Table 9 provides a summary of CMS targets of relevance for chemicals and waste. Examples from national reporting derive from national reports submitted for CMS COP-13.

Table 9. Targets of the CMS Strategic Plan for 2015-2023 used as a basis for reporting that directly or indirectly intersect with the chemicals and waste.

Target	Relevance to chemicals and waste MEAs	Examples from national reporting
Target 3: National, regional and international **governance arrangements** and agreements affecting migratory species and their migration systems have improved significantly, making relevant policy, legislative and implementation processes more coherent, accountable, transparent, participatory, equitable and inclusive	Collaboration with other MEAs may include the chemical and waste MEAs, although this is not explicitly mentioned.	
Target 4: **Incentives,** including subsidies, harmful to migratory species, and/or their habitats are eliminated, phased out or reformed to minimize or avoid negative impacts, and positive incentives for the conservation of migratory species and their habitats are developed and applied, consistent with engagements under the CMS and other relevant international and regional obligations	Directly linked to fiscal reforms promoted by SAICM, including subsidy reforms focusing on removing subsidies on hazardous agrochemicals and using subsidies to help transition to the use of safer agrochemicals or non-chemical alternatives.	• In Switzerland farmers have access to subsidy payments only if certain conditions are met, including reducing the application of pesticides (national report, p. 14)
Target 5: Governments, key sectors and stakeholders at all levels have taken steps to achieve or have implemented plans for **sustainable production and consumption**, keeping the impacts of use of natural resources, including habitats, on migratory species well within safe ecological limits to promote the favourable conservation status of	Sound management of chemicals and waste is an essential element for achieving sustainable production and consumption, although this is not explicitly mentioned in the reporting format. The concept would benefit form further elaboration under the convention, as responses caried greatly across countries.	• Sweden reports that work under this target includes implementing measures from many agreements to limit harmful chemicals in the environment that has resulted in reduced dioxin and heavy metal values in eggs of predatory birds and their numbers are increasing (national report, p. 13).

Target	Relevance to chemicals and waste MEAs	Examples from national reporting
migratory species and maintain the quality, integrity, resilience, and ecological connectivity of their habitats and migration routes		
Target 6: **Fisheries and hunting** have no significant direct or indirect adverse impacts on migratory species, their habitats or their migration routes, and impacts of fisheries and hunting are within safe ecological limits	**Accidental/deliberate poisoning** is mentioned as a pressure for mortality that is to be assessed in conjunction with reporting. The reporting format specifies that reporting "*may include for example mortality resulting from use of toxic substances in agriculture (pesticides, fungicides, algicides), for control of predators in game management, veterinary pharmaceutical treatments and use of lead for hunting and fishing*." In addition, Res. 11.15 on Preventing Poisoning of Migratory Species and Res. 13.39 on Preventing Poisoning of Migratory Birds are recommended as a basis for reporting purposes.	• UK monitors possible lead poisoning from ammunition sources of found dead water birds and large raptors (national report, p. 48 • Netherlands informs that 3% of its farmland is under organic farming and has developed a vision for circular agriculture (national report, p. 15) • Czech Republic has prepared a National Strategy on Illegal Killing and Poisoning of Wild Animals 2020-2030 (national report, p. 1) • South Africa has established a National Wildlife Poisoning Prevention Working Group tasked to, inter alia, understand the sources of poisons and toxic pesticides used to kill vultures, rhinos and elephants (national report, p. 15).
Target 7: Multiple **anthropogenic pressures** have been reduced to levels that are not detrimental to the conservation of migratory species or to the functioning, integrity, ecological connectivity and resilience of their habitats.	The reporting format states that the pressures may include those relating to, inter alia, **pollution** and marine debris. To this end, the reporting format includes a specific category for assessing effects of pollution. The reporting format further specifies that *"pollution may be physical,* **chemical***, or biological. In considering what may be relevant to report, attention should be given to the potential effects of multiple pollutants in combination in a given environment, and not only their individual risks in isolation."*	• UK reports that excessively high levels of long-lived contaminants, specifically PCBs, are still present in cetacean apex predators such as bottlenose dolphins (national report, p. 54). • Sri Lanka reports that ghost fishing affects many species, including Dugong dugong and other large marine species (national report, p. 14) • Sweden reports that environmental poisons affect Appendix 1 Falco peregrinus and Appendix I bird species Haliaeetus albicilla, Appendix II fish species Anguilla Anguilla (national report, p. 16). • Czech Republic reports that indirect poisoning though wide and often unproper use of pesticides and lead ammunition and lead fishing weights form the greatest challenges for migratory species (national report, p. 1) • Germany reports that PCB and other POPs form a threat to Phocoena phocoena and that availability of toxic chemicals is a challenge to protecting birds of prey (national report, p. 20)

Target	Relevance to chemicals and waste MEAs	Examples from national reporting
Target 10: All critical habitats and sites for migratory species are identified and included in **area-based conservation measures** so as to maintain their quality, integrity, resilience and functioning in accordance with the implementation of Aichi Target 11, supported where necessary by environmentally sensitive **land-use planning and landscape management on a wider scale**	Area-based conservation measures, including land-use planning and landscape management on a wider scale, may provide an opportunity to address chemical and waste, although this has not been specified in the reporting format.	No examples found
Target 11: Migratory species and their habitats which provide important ecosystem services are maintained at or **restored** to favourable conservation status, taking into account the needs of women, indigenous and local communities and the poor and vulnerable.	Restoration of habitats contaminates with chemicals or waste contribute to sound management of chemical and waste, although this has not been specified in the reporting format.	• In Seychelles, the Aldabra clean-up project 2018-2019 was carried out helping to reduce plastic pollution that washes up on Aldabra's coastline, blocking the paths of nesting green turtles, entangles and is ingested by sea birds and waders, and strangles marine mammals such as dolphins and whales (national report, p. 10)
Target 14: The **traditional knowledge,** innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of migratory species, their habitats and migration systems, and their customary sustainable use of biological resources, are respected, subject to national legislation and relevant international obligations, with the full and effective participation of indigenous and local communities, thereby contributing to the favourable conservation status of migratory species and the ecological connectivity and resilience of their habitats.)	Traditional knowledge relies on the use of non-chemical alternatives and, which can help to contributes to sound management of chemicals and waste, although this is not specified in the reporting format.	No examples found

3.4 Ramsar Convention

11 out of 19 Targets included in the Ramsar Strategic Plan for 2015-2024 are of relevance to chemicals and waste. However, the reporting format makes no direct reference to the need to report on activities to achieve sound management of chemicals and waste in context of conservation and wise use of wetlands, although it includes a dedicated target (Target 2) on wastewater treatment. To this end, many countries do not specifically mention chemicals in their national reports, although in may ceases challenges in relation to pesticides are mentioned. Table 10 provides a summary of Ramsar targets of relevance for chemicals and waste. Examples from national reporting derive from national reports submitted for Ramsar COP-14.

Table 10. Targets of the Ramsar Strategic Plan for 2015-2024 used as a basis for reporting that directly or indirectly intersect with chemicals and waste.

Targets	Relevance to chemicals and waste	Examples from national reporting
Target 1: Wetland benefits are featured in national/local policy strategies and plans relating to **key sectors** such as water, energy, mining, agriculture, tourism, urban development, infrastructure, industry, forestry, aquaculture, fisheries at the national and local level	The reporting format asks whether wetland benefits have been included in national action plans for **pollution** control and management (question 1.1o)	• Many countries report on including wetlands benefits in national action plans for pollution control and management
Target 2: **Water use** respects wetland ecosystem needs for them to fulfil their functions and provide services at the appropriate scale inter alia at the basin level or along a coastal zone.	The reporting format includes eight questions concerning **wastewater treatment** (questions 2.8-2.14).	• Australia uses wetlands widely as a water pollution control measure, There are ongoing trials of treatment wetlands and technologies to reduce nutrients and pesticides from farms in the catchments (national report, p. 15). • Bangladesh has set Water Quality Standards set for wetlands (fisheries and agriculture use) in Environment Conservation Rules 1997 (national report, p. 7) • China is exploring how to turn future wastewater treatment plants into plants for producing energy, water and fertilizers (national report, p. 36)
Target 3: The public and private sectors have increased their efforts to apply guidelines and good practices for the wise use of water and wetlands.	The reporting format includes a question about the use of **incentive measures** to encourage the conservation and wise use of wetlands and a question about removal of harmful incentive measures which discourage conservation and wise use of wetlands (questions 3.3-3.4)	• Japan has implemented direct payments to support environmentally friendly agricultural practices, including methods that take into account of conserving wetland ecosystems (seen in rice paddies) (national report, p. 17) • UK provides incentives to farmers to adopt appropriate management regimes to conserve, restore and create wetland habitats and to buffer waterbodies from pollutants (national report, p. 16)

Targets	Relevance to chemicals and waste	Examples from national reporting
Target 4: **Invasive alien species** and pathways of introduction and expansion are identified and prioritized, priority invasive alien species are controlled or eradicated, and management responses are prepared and implemented to prevent their introduction and establishment.	The control of invasive alien species may include biological, chemical and/or manual control. Although not specified in the reporting format, chemicals control may be harmful to wetlands, and in such cases other options should be opted.	• Bangladesh controls Water hyacinth through an age old agricultural system where floating platform or Baira is made from the water hyacinth for growing vegetables in water stagnated areas, reducing the need to use herbicides, such as glyphosate (national report, p. 12) • Canada has successfully controlled Purple Loosestrife through a biological control agent, as well as manual removal (national report, 23)
Target 7: Sites that are at **risk of change of ecological character** have threats addressed.	Pollution is one of the key factors that may cause changes in the ecological character of Ramsar Sites, as specified in Article 3.2	• Slovakia has made an "Art. 3.2 report" about arsenic leakage from the old industrial dumping site at the Orava River that affects the ecological character of a Ramsar Site (national report, p. 14)
Target 8: National wetland **inventories** have been initiated, completed or updated and disseminated and used for promoting the conservation and effective management of all wetlands.	The questions on inventories focus mainly of the extent and types of wetlands, but open-ended nature of questions allow for adding information on monitoring data, including screening of contaminants.	• Switzerland has developed a long-term monitoring network of watercourses, including regular screening analysis of pesticides and other micropollutants (national report, p. 8) • Belgium monitors, inter alia, nitrate and pesticides in groundwater (national report, p. 15).
Target 9: The wise use of wetlands is strengthened through **integrated resource management** at the appropriate scale, inter alia, within a river basin or along a coastal zone.	Integrated resources management of wetlands may be broadly understood to encompass sound management of chemicals and waste although this is not specified in the reporting format.	• England is updating its River Basin Management Plan focusing on addressing, inter alia, chemicals in the water environment, and pollution from plastics, agriculture, water industry wastewater and other sources (national report, p. 6).
Target 10: The **traditional knowledge**, innovations and practices of indigenous peoples and local communities relevant for the wise use of wetlands and their customary use of wetland resources are documented, respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention, with a full and effective participation of indigenous peoples and local communities at all relevant levels.	Traditional knowledge, innovation and practices do not rely on the use of synthetic chemicals and may in some cases provide non-chemical alternatives to agriculture to alleviate pressure on wetlands.	• In Switzerland, the Wässermatten in the river valleys of Oberaargau is the last example of a cultural practice of cooperative meadow irrigation and fertilisation that was widely practiced in the 13th century by the Cistercian monks to enrich the soil (national report, p. 20).
Target 12: **Restoration** is in progress in degraded wetlands, with priority to wetlands that are relevant for biodiversity conservation, disaster risk	The reporting format includes three questions on restoration (questions 12.1-12.3). However, the target and its questions do not directly refer to chemicals or waste, although it is evident that	• China has diverted water from reivers to shrinking wetlands. Researchers recommended that the water quality of any diverted water should be tested, including content of POPs and heavy metals (national report, p. 29)

Targets	Relevance to chemicals and waste	Examples from national reporting
reduction, livelihoods and/or climate change mitigation and adaptation.	they need consideration in the restoration of wetlands.	• In Jamacia, a public-private partnership has been created to restore mangroves in Rocky Point that were damaged in 2017 by a chemical spill (Sodium Hydroxide) which resulted in the death of mangroves (national report, p. 33)
Target 13: Enhanced sustainability of **key sector**s such as water, energy, mining, agriculture, tourism, urban development, infrastructure, industry, forestry, aquaculture and fisheries, when they affect wetlands, contributing to biodiversity conservation and human livelihoods	The reporting format specifies that EIA needs to give consideration possible effects of agriculture, fisheries, forestry and mining on wetlands. (question 13.2)	No examples found
Target 18: **International cooperation** is strengthened at all levels.	The reporting format asks whether the national focal points of other MEAs invited to participate in the National Ramsar/Wetland Committee (question 18.1)	• Thailand states that focal point from the BRS conventions are invited to participate in the National Ramsar/ Wetland Management Sub-Committee (national report)

4. Options for approaches and tools for joint reporting and action

The mapping exercise identified ten themes that provide entry points for describing activities for achieving sound management of chemicals and waste that contribute to the biodiversity agenda in fulfilling reporting obligations to the biodiversity-related MEAs.

4.1 Description of options

A) Core provisions

1) Reporting on ecosystem **restoration and rehabilitation** would benefit from a stronger chemical perspective, focusing on how the biodiversity MEAs could participate in the remediation of terrestrial, fresh water and marine ecosystems contaminated by POPs, mercury and other hazardous chemicals. This could include the development a handbook or guidelines to provide practical guidance, as well as relevant training.

Indicators measures:

- Number of sites and/or surface areas of terrestrial, fresh water and marine ecosystems contaminated by hazardous chemicals remediated
- Number of sites and/or surface areas of terrestrial, fresh water and marine ecosystems contaminated by hazardous waste remediated

2) Reporting on **conservation** measures could be strengthened by giving more attention to minimizing the use of chemicals in protected areas, including taking stricter measures to prohibit/minimize ASGM and other forms of artisanal mining (e.g. diamonds) with detrimental impcats on biodiversity. Moreover, focus could also be given to banning the use of specific harmful products, such as single-use plastics, which may end up littering protected areas.

Indicators:

- Number of interventions taken to reduce the release of harmful chemicals in protected areas (e.g. banning artisanal mining)
- Number of interventions taken to reduce waste in protected areas (e.g. banning single-use plastics)

3) **Integrated spatial planning** could be defined to better cover the sound management of chemicals and waste. For instance, this could include surrounding protected areas with buffer zones that do not allow for intensive agriculture but would be better suited for organic farming or other uses that do not release harmful pesticides or other chemicals in the vicinity of protected areas. Possibilities for embedding sound management of chemicals and waste in integrated spatial planning would benefit from further studies and development of relevant guidance.

Indicators / measures:

- Share of and/or number of protected areas surrounded by buffer areas that do not allow for intensive farming practices using harmful agrochemicals

4) The control of **trade** of species listed under the CITES convention, chemicals listed under the Stockholm Convention, Minamata Convention and Montreal Protocol and hazardous waste regulated under the Basel Convention could benefit from a coordinated approach, and cross-fertilization and learning of best practices. This could include the organization of joint capacity building workshops.

Indicators / measures :

- Numbers of joint workshops organized to strengthen the capacity of customs officials to detect hazardous chemicals and waste and CITES-listed species in imported goods.

5) **Fiscal reforms**, including cost recovery measures and use of market-based instruments (e.g. subsidy reforms) cut across the clusters, and could be promoted jointly, including to help to minimize the use of harmful agrochemicals.

Indicators / measures:

- Number of market-based instruments adopted to minimize (negative incentive) or phase out the use of harmful agrochemicals
- Number of market-based instruments adopted to subside (positive incentive) sustainable agricultural practices that reduce dependency on harmful chemicals

6) **Pollution** is a generic term commonly used by the biodiversity-related MEAs and is prominently reflected in their reporting formats. It provides a valuable opportunity to strengthen reporting on activities to achieve sound management of chemicals and waste that contribute to stemming biodiversity loss. However, currently, a barrier for joint reporting and joint action across the clusters may be that the biodiversity-related MEAs have not adopted explicit resolutions to define chemical pollution in context of biodiversity. Developing such a definition could positively contribute to cross-cluster synergies

7) **Sustainable consumption and production** are a broad concept that may be understood to comprehend **sustainable use and management of natural resources**, including **sustainable agriculture, aquaculture, and forestry**. Sound management of chemicals and waste is an integral part of such practices, which can be realized with, inter alia, integrated pest management, organic farming and agroforestry and/or by taking better use of **traditional knowledge,** which does not involve the use of synthetic chemicals. Moreover, **mining** and artisanal mining(ASGM) are putting increasing pressure on biodiversity and ecosystems through uncontrolled releases of mining waste, which includes many highly hazardous chemicals, including heavy metals.

Indicators / measures:

- Number of and/or surface area of agricultural land managed by organic farming or traditional practices that use biological control or other non-chemical control or pests and weeds.
- Number of interventions taken to reduce the releases of hazardous chemicals in aquaculture.
- Developmnet of legislation and measures for enforcement of mining operations to protect biodiversity.

8) **Invasive alien species** are often treated with hazardous chemicals, in particular invasive weeds that are very difficult to control. Some countries are pioneering biological control of invasive species that could be expanded to other countries and regions to minimize the risks for ecosystems and biodiversity. This could be facilitated by the development of guidelines for non-chemical control of invasive species.

Indicators / measures:

- Number of studies prepared for identifying non-chemical alternatives for controlling inessive alien species
- Number of applications of on-chemical alternatives for controlling inessive alien species

B) Supporting provisions

9) **National action plans** could be better used to formulate joint activities that cut across the clusters. The NBSAPs are of relevance, as it provides through the post-2020 targets many entry points for addressing chemicals and waste.

10) Aligning **inventories** of emissions and release of hazardous chemicals with greenhouse has inventories could facilitate reporting. The benefits of aligned data collection include optimising resources for data collection, reducing uncertainty in the data across inventories, ensuring consistency across reporting frameworks, and reducing investment requirements in both data collection and quality assurance/quality control. An example of aligning inventories across Chemicals and Waste and Biodiversity cluster include; Stockholm NIPs and Minamata mercury inventories that could provide basis for assessing targets under new adopted Kunming-Montreal GBF.

C) Operational and Institutional solutions

11) At the national level, it will be important to convene **the national MEA focal points** across the clusters, as reflected in reporting formats.

12) At the international level, existing mandates for enhancing synergies among MEAs could enable the Secretariats to facilitate the development of **joint work plans** on specific topics across the clusters. This could even include the introduction of joint indicators to facilitate joint follow-up, including

monitoring and reporting. Issues of joint interest could include the ten approaches and tools listed under core and supporting provisions above.

4.2 Summary of options

Table 11 indicates how the proposed approaches and tools for joint action relates to the reporting obligation of the biodiversity-related MEAs. The targets and objectives of the strategic plans of the biodiversity-related MEAs have been used in the mapping, given they form the basis for their reporting formats.

Table 11. Relationship between the proposed approaches and tools for joint action and the targets and objectives of the biodiversity-related MEAs.

Category	Approaches and tools for joint action	GBF Targets	Ramsar Targets	CITES Targets	CMS Targets
Core provisions	Remediation / restoration / rehabilitation	Target 2	Target 12	Objective 1.6	Target 11
	Conservation	Target 3	Target 7		Target 10
	Integrated spatial planning / Integrated management	Target 1	Target 5		Target 10
	Trade	Target 5		Objective 1.7	
	Fiscal reforms	Target 18	Target 3	Objective 2.2	Target 4
	Pollution	Target 7	Target 7		Targets 6-7
	SCP, including sustainable use (agriculture, forestry, aquaculture), mining and the use of traditional knowledge	Target 10 Target 20	Target 1 Target 10 Target 13		Target 5 Target 14
	Invasive alien species	Target 6	Target 4		Target 7
Supporting provisions	Inventories	Target 7	Target 8	Annual trade reports	
	National action plans (NAPs)[15]	Target 14	Target 1	Objective 3.4	Target 13
Operational/ Institutional solutions	National committees	Target 14	Target 18	Objective 3.3	Target 3
	Joint work plans				

Table 12 provides a summary of results from the mapping exercise to identify areas where the chemicals and waste cluster intersect with the biodiversity cluster, based on the obligations of the chemicals and waste conventions, as reflected in their reporting formats.

[15] All the biodiversity-related MEAs refer to NBSAPs developed under the CBD.

Table 12. Summary of mapping of core provisions chemicals and waste cluster.

Category	Provisions	Obligations in the chemicals/waste MEAs	Links to biodiversity targets/objectives
Core provisions	**Extractive measures**	• Minamata Convention (Art. 3 and Art. 7)	• GBF Target 2 • Ramsar Target 13 • CMS Target 7
	Production and use of chemicals	• Stockholm Convention (Art. 3) • Minamata Convention (Art. 4) • Montreal Protocol (Art. 2)	• GBF Targets 7 and 15 • CMS Target 5 and 7
	Emissions and releases	• Stockholm Convention (Art. 5) • Minamata Convention (Art. 8 and Art. 9)	• CBF Target 7 • CMS Targets 6-7 • Ramsar Target 7
	Waste management	• Basel Convention (Art. 4.2)	• GBF Target 16
	Remediation of contaminated sites	• Stockholm Convention (Art. 6) • Minamata Convention (Art. 12)	• GBF Target 2 • CITES Objective 1.6 • CMS Target 11 • Ramsar 12
	Trade controls	• Stockholm Convention (Art. 3) • Minamata Convention (Art. 4) • Montreal Protocol (Art. 4) • Basel Convention (Art. 13)	• GBF Target 5 • CITES Objective 1.7
Supporting provisions	**Inventories**	• Stockholm Convention (Art. 6) • Minamata Convention (Art. 8 and Art. 9) • Montreal Protocol	• GBF Target 7 • Ramsar Target 8
	Transparency	• Stockholm Convention (Art. 9)	
	National action plans	• Stockholm Convention (Art. 7) • Minamata Convention (Art. 7)	• GBF Target 14
	Monitoring and indicators	• Stockholm Convention (Art. 11) • Minamata Convention (Art. 19)	• All biodiversity MEAs
	Reporting	• Stockholm Convention (Art. 15) • Minamata Convention (Art. 21) • Montreal Protocol (Art. 7) • Basel Convention (Art. 13)	• All biodiversity MEAs

Annex. 1. Compilation of mapping of reporting obligations

The annex consists of a compilation of reporting obligations for MEAs in the biodiversity and climate clusters used as raw data for the analysis.

Table 13. Main elements of draft targets and proposed headlines indictors in the first draft of the post-2020 Global Biodiversity Framework.

Clusters	Draft targets	Draft headline indicators	Relevance to chemicals and waste MEAs
Cluster 1: Reducing threats to biodiversity	**Target 1:** Promote **integrated spatial planning**	• Indicator of the percentage of land and seas covered by [landscape-level] spatial [plans that integrate] [integral] biodiversity [plans]	Integrated spatial planning can help to improve nutrient and pesticide management and decrease their run-off to protected areas and/or other water bodies, where they cause harm to the aquatic environment.
	Target 2: Enhance **restoration**	• [Percentage][Area] of degraded [and] [or] converted ecosystems that are under [ecological] restoration	Directly linked to the remediation of contaminated sites under the Minamata convention and the Stockholm Convention.
	Target 3: Increase area of **protected areas**	• [Percentage] [Coverage] of protected areas and OECMS, by effectiveness, [ecosystem type,] [KBA/EBSA status	Protected areas may indirectly help to reduce chemical pollution and mitigate extraction of raw materials, including ASGM under the Minamata Convention.
	Target 4: Ensure **recovery and conservation** of species and genetic diversity, including ex-situ conservation	• Proportion of species populations that are affected by human wildlife conflict [requiring intensive recovery due to human wildlife conflict] • Number of plant [and animal] genetic resources [for food and agriculture] secured in medium or long-term conservation facilities (SDG 2.5.1)	Recovery and conservation of species will benefit from biomonitoring to ensure chemical pollutants do not exceed critical thresholds for species survival.
	Target 5: Ensure legal, safe and sustainable **harvesting and trade** of wild species	• 5.0.1 Proportion of [wildlife] [wild species][wood and plant] that is harvested and traded legally and sustainably • Proportion of fish stocks within biologically sustainable levels (SDG 14.4.1)	Trade intersects with all the chemicals and waste conventions. Enforcement of trade controls can be improved by strengthening capacities of custom officer across the clusters.
	Target 6: Mitigate **invasive alien species**	• Rate of invasive alien species spread [and rate of impact]	Many hazardous chemicals are used to eradicate invasive alien species, in particular weeds, that could be substituted with safer alternatives or with biological control options.
	Target 7: Reduce **pollution** (nutrients, pesticides, plastic waste)	• Index of coastal eutrophication potential (excess nitrogen and phosphate loading, exported from national boundaries) [by waterbody][by basin] (SDG 14.1.1a) • Floating plastic debris density [by micro and macro plastics] (SDG 14.1.1b)	The new targets in the adopted Kunming-Montreal GBF mentions “pollution from all sources” and highly hazardous chemicals in addition to pesticides, plastics, and nutrients. Which is interpreted in a much broader

Clusters	Draft targets	Draft headline indicators	Relevance to chemicals and waste MEAs
		• [Most hazardous] Pesticide [use] [load] [per area of cropland] Other relevant component indicators: • Fertilizer use • Proportion of domestic and industrial wastewater flow safely treated (SDG 6.3.1) • Municipal solid waste collected and managed (SDG 11.6.1) • Hazardous waste generation (SDG 12.4.2)	perspective with relevance as well for other POPs, heavy metals etc.
	Target 8: Minimize impact of **climate change** through ecosystem-based approaches	• National [net] green-house[emissions] [gas inventories] from land use and land use change [by land use and land use change category, subcategory, [and] natural/modified]	No
Cluster 2: Meeting people's needs through sustainable use and benefit-sharing	**Target 9:** Ensure sustainable management of wild species	• National environmental-economic accounts of benefits from the use of wild species	No
	Target 10: Ensure sustainable **agriculture, aquaculture, and forestry**	• Proportion of agricultural area under productive and sustainable agriculture (add SDG 2.4.1) • Progress towards sustainable forest management (Proportion of forest area under a long-term forest management plan) (add SDG 15.2.1(4))	Eliminating or minimising the use of harmful chemicals, in particular POPs, is essential for ensuring sustainable agri-culture and forestry. This may include, inter alia, organic farming where the application of synthetic chemicals, like fertilisers, pesticides, hormones and growth regulators, are reduced and eliminated,
	Target 11: Enhance/maintain **nature's contributions**	• National environmental-economic accounts of regulation of air quality, quality and quantity of water, and protection from hazards and extreme events for all people, [from ecosystems][to maintain or increase relevant ecosystem services] <u>Other relevant indicators:</u> • Proportion of bodies of water with good ambient water quality (SDG 6.3.2) • Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services) (SDG indicator 3.9.2) • Proportion of population using safely managed drinking water services (SDG indicator 6.1.1)	Maintaining nature's contributions, in particular good water quality, requires sound management of chemicals and waste. For instance, many water bodies are heavily polluted by PFAS, regulated by the Stockholm Convention.

Clusters	Draft targets	Draft headline indicators	Relevance to chemicals and waste MEAs
	Target 12: Increase area, access and benefits from **green and blue spaces**	• Average share of the built-up area of cities that is green/blue space for public use for all (SDG 11.7.1)	No
	Target 13: Fair and equitable sharing of benefits arising from the use of **genetic resources**	• [Percentage of countries that have] [Indicator[s] of] operational legislative, administrative or policy frameworks which [facilitate access to and] ensure fair and equitable sharing of benefits[, including those based on PIC and MAT] [shared in the ABS Clearing-House]	No
Cluster 3: Tools and solutions for implementation and mainstreaming	**Target 14:** **Integrate biodiversity** into policies, strategies and planning processes	• Extent to which national targets [have been adopted] for integrating biodiversity values [as cornerstones for implementation] into policies, regulations, planning, development processes, poverty reduction strategies [and accounts] [are established] at all levels, ensuring that biodiversity values are mainstreamed across all sectors and integrated into assessments of environmental impacts • [Number of countries with] Implementation of the System of Environmental-Economic Accounting [(SDG 15.9.1b)]	Integrating biodiversity more firmly to chemical policies and strategies will be important to safeguard biodiversity. This can be best achieved by acknowledging chemicals and waste in context of de-signing biodiversity policies, including developing NBSAPs.
	Target 15: Increase sustainability of **businesses** from extraction to disposal	• [Number of companies assessing and reporting on their][Quantified volumes of] Dependencies [and] impacts[, risks and opportunities] of businesses on biodiversity [and related human rights]	Extractive industries, the gas and oil industry, the chemical and petrochemical industry, retailers, and waste operators need to assess and minimize their impacts on biodiversity.
	Target 16: Reduce **waste** and enable responsible choices based on access to information	• Material footprint per capita (SDG 8.4.1/12.2.1) • 16.0.1 Food waste index (SDG 12.3.1b)	The activities of the Basel Convention support reduction of waste and thereby, contribute to preventing biodiversity loss.
	Target 17: Strengthen capacity to prevent, control and manage adverse impcats of **biotechnology**	• Indicator of [capacity and] measures in place to [prevent] manage [or] [and control] potential [adverse] impacts of [LMOs and other products from the sustainable use of biodiversity] [LMOS resulting from modern] biotechnology on biodiversity taking into account [conservation] [cultural and social economic considerations and] human health [and environment safety]	No
	Target 18: Undertake **fiscal reforms**	• [Percentage reduction in] [Value of] subsidies and other incentives harmful to biodiversity, that are	Directly linked to fiscal reforms promot-ed by SAICM, including subsidy reforms focusing on removing of

Clusters	Draft targets	Draft headline indicators	Relevance to chemicals and waste MEAs
		[redirected, repurposed or][consistent with WTO rules] [or] eliminated [as a proportion of total subsidies] <u>Other relevant indicators:</u> • [Positive incentives] [Economic incentives in place to promote biodiversity conservation and sustainable use] • Number of countries with biodiversity-relevant taxes • Number of countries with biodiversity-relevant charges and fees • Number of countries with biodiversity-relevant tradable permit schemes • Trends in potentially environmentally harmful elements of government support to agriculture (producer support estimate)	subsidies on hazardous agrochemicals and using subsidies to help transition to the use of safer agrochemicals
	Target 19: Increase **financial resources**	• Official development assistance for biodiversity (SDG 15.a.1) • Public [funding] [expenditure] and private [funding] [expenditure] on conservation and sustainable use of biodiversity and ecosystems [as well as development and access to innovation, technology transfer and research on innovation]	Yes
	Target 20 Ensure that **traditional knowledge** guides decision-making	• Indicator on biodiversity information and monitoring, including traditional knowledge [with FPIC][and scientific knowledge], for management	In the context of agriculture, traditional knowledge usually concerns application of special old methods of plants growing and livestock breeding. In plant production, this often assumes traditional methods of plants protection against diseases or fertilizing without chemicals use.
	Target 21: Ensure equitable **participation** in decision-making	• [Mechanisms for the full, equitable participation of] [Indicator on [the degree to which]] indigenous peoples and local communities [respecting all their rights in particular of land, waters and resources], women and girls [in all their diversity] as well as youth [and human rights defenders] participate[ion] in decision-making related to biodiversity • Land use change and] Land tenure [in the traditional territories] of indigenous peoples and local communities [by sex and type of tenure]	No

Table 14. CITES Strategic Vision for 2008-2020 used as basis for the reporting format (implementation reports).

Goal	Objective	Indicators	Relevance to chemicals and waste MEAs
Goal 1. Ensure compliance with and implementation and enforcement of the convention	**Objective 1.1:** Parties comply with their obligations under the Convention through appropriate policies, legislation and procedures.	• The number of Parties that are in category 1 under the national legislation project	No
	Objective 1.2: Parties have in place administrative procedures that are transparent, practical, coherent and user-friendly, and reduce unnecessary administrative burdens.	• The number of Parties that have adopted standard transparent procedures for the timely issuance of permits in accordance with Article VI of the Convention. • The number of Parties making use of the simplified procedures provided for in Resolution Conf. 12.3 (Rev. CoP16).	No
	Objective 1.3: Implementation of the Convention at the national level is consistent with decisions adopted by the Conference of the Parties.	• The number of Parties that have implemented relevant reporting under Resolutions and Decisions of the Conference of the Parties and/or Standing Committee recommendations.	No
	Objective 1.4: The Appendices correctly reflect the conservation needs of species.	• The number and proportion of species that have been found to meet the criteria contained in Resolution Conf. 9.24 or its successors. This includes both the periodic review and amendment proposals	No
	Objective 1.5: Best available scientific information is the basis for non-detriment findings.	• The number of surveys, studies or other analyses undertaken by exporting countries based on the sources of information cited in Resolution Conf. 16.7 on Non-detriment findings related to: - the population status of Appendix-II species; - the trends and impact of trade upon Appendix-II species; and - the status of and trend in naturally-occurring Appendix I species and the impact of any recovery plans. • The number of Parties that have adopted standard procedures for making non-detriment findings.	No

Goal	Objective	Indicators	Relevance to chemicals and waste MEAs
		• The number and proportion of annual export quotas based on population surveys.	
	Objective 1.6 Parties cooperate in managing shared wildlife resources.	• The number of bilateral and multilateral agreements that specifically provide for co-management of shared CITES listed species by range States. • The number of cooperative management plans, including recovery plans, in place for shared populations of CITES-listed species. • The number of workshops and other capacity-building activities that bring range States together to address the conservation and management needs of shared, CITES listed, species	CITES-listed species affected by POPs and mercury could benefit from recovery plans mentioned in questions 1.6.2a. (Question 1.6.2a: Do you have any cooperative management plans, including recovery plans, in place for shared populations of CITES-listed species?)
	Objective 1.7 Parties are **enforcing** the Convention to reduce illegal wildlife trade.	• The number of Parties that have, are covered by, or engaged with: - an international enforcement strategy and/or action plan; - formal international cooperation, such as an international enforcement network; - a national enforcement strategy and/or action plan; and - formal national interagency cooperation, such as a national interagency enforcement committee. • The number of Parties with a process or mechanism for reviewing their enforcement strategies, and the activities taken to implement their strategies. • The number of Parties that have criminal (penal) law and procedures, capacity to use forensic technology, and capacity to use specialized investigation techniques, for investigating, prosecuting, and penalizing CITES offences • The number of Parties using risk assessment and intelligence to combat illegal trade in CITES-listed species. • The number of administrative measures, criminal prosecutions and other court actions for CITES-related offences.	The reporting format refers explicitly to enforcement of wildlife trade. However, enforcement agencies, in particular customs control agencies could benefit from a joint approach for implementing trade-relates provisions of CITES and chemicals and waste MEAs that have trade restrictions, including the Basel Convention, the Minamata Convention, the Stockholm Convention and the Monteral Protocol.

Goal	Objective	Indicators	Relevance to chemicals and waste MEAs
	Objective 1.8 Parties and the Secretariat have adequate **capacity-building** programmes in place.	• The number of Parties with national and regional training programmes and information resources in place to implement CITES including the making of non-detriment findings, issuance of permits and enforcement.	no
Goal 2 Secure the necessary financial resources and means for the operation and implementation of the convention	**Objective 2.1** Financial resources are sufficient to ensure operation of the Convention.		No
	Objective 2.2: Sufficient resources are secured at the national and international levels to ensure compliance with and implementation and enforcement of the Convention.	• The number of Parties with dedicated staff and funding for Management Authorities, Scientific Authorities and wildlife trade enforcement agencies. • The number of Parties that have undertaken one or more of the following activities: - changed the budget for activities; - hired more staff; - developed implementation tools; - purchased technical equipment for implementation, monitoring or enforcement. • The number of Parties raising funds for CITES implementation through user fees or other mechanisms (2.2.2). • The number of Parties using incentive measures as part of their implementation of the Convention (2.2.3).	The introduction of user fees and incentive measures, including the removal of harmful incentives, are included in questions under indicators 2.2.3 and 2.2.4, that are closely linked to cost recovery and other economic instruments promoted under SAICM. Questions 2.2.3a-d and 2.2.4a-b are relevant, although they specifically focus on fees and inventive measures related to CITES implementation that are distinct from those used for sound management of chemicals and waste.
	Objective 2.3: Sufficient resources are secured at the national and international levels to implement capacity-building programmes.	• The number of capacity building activities mandated by Resolutions and Decisions that are fully funded	No
Goal 3 Contribute to significantly reducing the rate of biodiversity	**Objective 3.1:** Cooperation between CITES and international financial mechanisms and other related institutions is enhanced in order to support CITES-related	• The number of Parties funded by international financial mechanisms and other related institutions to develop activities that include CITES-related conservation and sustainable development elements.	No

Goal	Objective	Indicators	Relevance to chemicals and waste MEAs
loss and to achieving relevant globally-agreed goals and targets by ensuring that CITES and other multilateral instruments and processes and coherent and mutually supportive	conservation and sustainable development projects, without diminishing funding for currently prioritized activities.	• The number of countries and institutions that have provided additional funding from CITES Authorities to another country or activity for conservation and sustainable development projects in order to further the objectives of the Convention	
	Objective 3.2 Awareness of the role and purpose of CITES is increased globally.	• The number of Parties that have been involved in CITES awareness raising activities to bring about better awareness by the wider public and relevant user groups of the Convention requirements • The number of visits to the CITES website. • The number of Parties with web pages on CITES and its requirements.	No
	Objective 3.3: Cooperation with relevant international environmental, trade and development organizations is enhanced.	• The number of Parties which report that they have achieved synergies in their implementation of CITES, other biodiversity-related conventions and other relevant multilateral environmental, trade and development agreements. • The number of biodiversity conservation or sustainable use projects, trade and development goals, or scientific and technical programmes that integrate CITES requirements • The number of Parties cooperating / collaborating with intergovernmental and non-governmental organizations to participate in and/or fund CITES workshops and other training and capacity-building activities.	Enhancing cooperation with focal points of other MEAs as mentioned in question 3.3.1a is relevant for MEAs in the chemicals and waste cluster, although they are not explicitly mentioned in the reporting format. Such cooperation could benefit from cross-fertilization of best practices across the clusters, including on trade and enforcement-related issues. (Question 3.3.1a: Have measures been taken to achieve coordination and reduce duplication of activities between the national CITES authorities and national focal points for other MEAs (e.g. the other biodiversity-related conventions: CBD, CMS, ITPGR, Ramsar, WHC) to which your country is party?)
	Objective 3.4: The contribution of CITES to the relevant Millennium Development Goals, the sustainable development goals set at WSSD, the Strategic Plan for Biodiversity 2011-2020 and the relevant Aichi Biodiversity Targets, and the relevant outcomes of the United Nations Conference on Sustainable Development is strengthened by ensuring that	• The conservation status of species listed on the CITES Appendices has stabilized or improved. • The number of Parties incorporating CITES into their National Biodiversity Strategy and Action Plan (NBSAP).	No

Goal	Objective	Indicators	Relevance to chemicals and waste MEAs
	international trade in wild fauna and flora is conducted at sustainable levels		
	Objective 3.5: Parties and the Secretariat co-operate with other relevant international organizations and agreements dealing with natural resources, as appropriate, in order to achieve a coherent and collaborative approach to species which can be endangered by unsustainable trade, including those which are commercially exploited.	• The number of cooperative actions taken under established bilateral or multilateral agreements to prevent species from being unsustainably exploited through international trade. • The number of times other relevant international organizations and agreements dealing with natural resources are consulted on issues relevant to species subject to unsustainable trade.	No

Table 15. The CMS Strategic Plan for 2015-2023 used as a basis for the reporting format for the CMS. The CMS national report format question constitute an essential part of the indicators.

Goal	Target	Indicators	Relevance to chemicals and waste MEAs
Goal 1: Address the underlying causes of decline of migratory species by mainstreaming relevant conservation and sustainable use priorities across government and society	**Target 1:** People are aware of the multiple values of migratory species and their habitats and migration systems, and the steps they can take to conserve them and ensure the sustainability of any use	• Simple qualitative assessment by CMS Parties in triennial national reports. • Levels of engagement in World Migratory Bird Day and similar events.	No
	Target 2: Multiple values of migratory species and their habitats have been integrated into international, national and local development and poverty reduction strategies and planning processes, including on livelihoods, and are being incorporated into national accounting, as appropriate, and reporting systems	• CMS National Report Format question:	No
	Target 3: National, regional and international governance arrangements and agreements affecting migratory species and their migration systems have improved significantly, making relevant policy, legislative and implementation processes more coherent, accountable, transparent, participatory, equitable and inclusive	• CMS National Report Format Question - Establishment of a national and/or subnational committee for liaison between different government agencies, ministries, sectors or groups - Collaboration between the focal points of CMS and other relevant global or regional Conventions to develop the coordinated and synergistic approaches described in paragraphs 25-27 of Res 11.10	Collaboration with other MEAs may include the chemical and waste MEAs, although this is not explicitly mentioned.
	Target 4: **Incentives, including subsidies, harmful to migratory species**, and/or their habitats are eliminated, phased out or reformed to minimize or avoid negative impacts, and positive incentives for the conservation of migratory species and their habitats are developed and applied, consistent with engagements under the CMS and other relevant international and regional obligations	• CMS National Report Format question: - Elimination, phasing out or reforming of harmful incentives during resulting in benefits for migratory species - Development and/or application of positive incentives resulting in benefits for migratory species	Directly linked to fiscal reforms promoted by SAICM, including subsidy reforms focusing on removing subsidies on hazardous agrochemicals and using subsidies to help transition to the use of safer agrochemicals or non-chemical alternatives.
Goal 2:	**Target 5:**	• CMS National Report Format question	Sound management of chemicals and waste is an essential element for

Goal	Target	Indicators	Relevance to chemicals and waste MEAs
Reduce the direct pressures on migratory species and their habitats	Governments, key sectors and stakeholders at all levels have taken steps to achieve or have **implemented plans for sustainable production and consumption**, keeping the impacts of use of natural resources, including habitats, on migratory species well within safe ecological limits to promote the favourable conservation status of migratory species and maintain the quality, integrity, resilience, and ecological connectivity of their habitats and migration routes	• Red List Index (impacts of utilisation on migratory species).	achieving sustainable production and consumption, although this is not explicitly mentioned in the reporting format. The concept would benefit from further elaboration under the convention, as responses caried greatly across countries.
	Target 6: **Fisheries and hunting** have no significant direct or indirect adverse impacts on migratory species, their habitats or their migration routes, and impacts of fisheries and hunting are within safe ecological limits	• Trends in implementation of measures designed to minimise impacts of fisheries and hunting on migratory species, their habitats and their migratory routes • Red List Index (impacts of fisheries on migratory species)	**Accidental/deliberate poisoning** is mentioned as a pressure for mortality that is to be assessed in conjunction with reporting. The reporting format specifies that reporting "*may include for example mortality resulting from use of toxic substances in agriculture (pesticides, fungicides, algicides), for control of predators in game management, veterinary pharmaceutical treatments and use of lead for hunting and fishing*." In addition, Resolutions 11.15 (Rev.COP13) on Preventing Poisoning of Migratory Species and 13.39 on Preventing Poisoning of Migratory Birds are recommended as a basis for reporting purposes. However, specific resolutions have been adopted oil pollution, plastic pollution and light pollution, but not for chemical pollution.

Goal	Target	Indicators	Relevance to chemicals and waste MEAs
	Target 7: Multiple anthropogenic pressures have been reduced to levels that are not detrimental to the conservation of migratory species or to the functioning, integrity, ecological connectivity and resilience of their habitats Note for Target 7: The pressures concerned may include those relating to climate change, renewable energy developments, power lines, by-catch, underwater noise, ship strikes, poisoning, **pollution,** disease, invasive species, illegal and unsustainable take and marine debris.	• Trends in selected threats to migratory species, their habitats and migratory routes. • CMS National Report Format question: - Advances made in addressing pollution - Most significant negative trends concerning pollution - Advances made in addressing habitat destruction/ degradation, including **mineral extraction** - Negative trends concerning habitat destruction/ degradation, including mineral extraction	Other pollution is mentioned as a pressure to be assessed in conjunction with reporting. The reporting format specifies that *"pollution may be physical, chemical, or biological. In considering what may be relevant to report, attention should be given to the potential effects of multiple pollutants in combination in a given environment, and not only their individual risks in isolation."*
Goal 3 Improve the conservation status of migratory species and the ecological connectivity and resilience of their habitats	**Target 8:** The conservation status of all migratory species, especially threatened species, has considerably improved throughout their range	• Red List Index for migratory species. • Living Planet Index for migratory species. • Wild Bird Index for migratory Birds • Trends in distribution of migratory species.	No
	Target 9: International and regional action and cooperation between States for the conservation and effective management of migratory species fully reflects a migration systems approach, in which all States sharing responsibility for the species concerned engage in such actions in a concerted way	CMS National Report Format question.	No
	Target 10: All critical habitats and sites for migratory species are identified and included in **area-based conservation measures** so as to maintain their quality, integrity, resilience and functioning in accordance with the implementation of Aichi Target 11, supported where necessary by environmentally sensitive land-use planning and landscape management on a wider scale	• Proportion of threatened and/or congregatory migratory species for which Key Biodiversity Areas have been identified throughout their range. • Proportion of Key Biodiversity Areas for selected groups of migratory species that are included in protected areas	Area-based conservation measures, including land-use planning and landscape management on a wider scale, may provide an opportunity to address chemical and waste, although this has not been specified in the reporting format.

Goal	Target	Indicators	Relevance to chemicals and waste MEAs
		• Management effectiveness of areas protected specifically for migratory species.	
Goal 4: Enhance the benefits to all from the favourable conservation status of migratory species	**Target 11:** Migratory species and their habitats which provide important ecosystem services are maintained at or **restored** to favourable conservation status, taking into account the needs of women, indigenous and local communities and the poor and vulnerable		Restoration of habitats contaminates with chemicals or waste contribute to sound management of chemical and waste, although this has not been specified in the reporting format.
	Target 12: The genetic diversity of wild populations of migratory species is safeguarded, and strategies have been developed and implemented for minimizing genetic erosion	• CMS National Report Format question, in two parts.	No
Goal 5: Enhance implementation through participatory planning, knowledge management and capacity building	**Target 13:** Priorities for effective conservation and management of migratory species, their habitats and migration systems have been included in the development and implementation of NBSAPs with reference where relevant to CMS agreements and action plans and their implementation bodies	• Extent of reflection of migratory species concerns in NBSAPs • Extent of reflection of migratory species concerns in the implementation of NBSAPs	No
	Target 14: The **traditional knowledge**, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of migratory species, their habitats and migration systems, and their customary sustainable use of biological resources, are respected, subject to national legislation and relevant international obligations, with the full and effective participation of indigenous and local communities, thereby contributing to the favourable conservation status of migratory species and the ecological connectivity and resilience of their habitats.)	• CMS National Report Format question.	Traditional knowledge relies on the use of non-chemical alternatives and, which can help to contributes to sound management of chemicals and waste, although this is not been specified in the reporting format.
	Target 15: The science base, information, training, awareness, understanding and technologies relating to migratory species, their habitats and migration systems, their value, functioning, status and trends, and the	• Trends in publication of papers on migratory species conservation in peer-reviewed or other similarly authoritative sources.	No

Goal	Target	Indicators	Relevance to chemicals and waste MEAs
	consequences of their loss, are improved, widely shared and transferred, and effectively applied		
	Target 16: The mobilization of adequate resources from all sources to implement the Strategic Plan for Migratory Species effectively has increased substantially	• Success in implementing national actions for mobilising resources to meet Target 16.	No

Table 16. Ramsar Strategic Plan 2015-2024 used as a basis for the reporting format. Only those indicators that are used to collect data from national reports are displayed in the table.

Goals	Targets	Indicators	Relevance to chemicals and waste MEAs
Goal 1: Addressing the drivers of wetland loss and degradation	**Target 1:** Wetland benefits are featured in national/local policy strategies and plans relating to **key sectors** such as water, energy, mining, agriculture, tourism, urban development, infrastructure, industry, forestry, aquaculture, fisheries at the national and local level	• % of Parties that have made assessment of ecosystem services of Ramsar Sites. • % of Parties that have included wetland issues within national strategies and planning processes such as water resource management and water efficiency plans. • % of Parties that have included wetland issues within National Policies or measures on agriculture.	The reporting format asks whether wetland benefits have been included in national action plans for pollution control and management (question 1.1o)
	Target 2: Water use respects wetland ecosystem needs for them to fulfil their functions and provide **services** at the appropriate scale inter alia at the basin level or along a coastal zone.	• % of Parties that have included wetland issues into national strategies and in the planning processes such as for water resource management and water efficiency plans.	The reporting format includes eight questions concerning wastewater treatment (questions 2.8-2.14).
	Target 3: The public and private sectors have increased their efforts to apply guidelines and good practices for the **wise use** of water and wetlands.	• % of Parties reporting actions taken to implement incentive measures that encourage the conservation and wise use of wetlands. • % of Parties reporting actions taken to remove perverse incentive measures that discourage conservation and wise use of wetlands. • % of Parties reporting private sector undertaking activities for the conservation, wise use and management of wetlands in general. • % of Parties having national Ramsar Committees that include both governmental and non-governmental representation.	The reporting format includes a question about the use of incentive measures to encourage the conservation and wise use of wetlands and a question about removal of harmful incentive measures which discourage conservation and wise use of wetlands (questions 3.3-3.4)
	Target 4: **Invasive alien species** and pathways of introduction and expansion are identified and prioritized, priority invasive alien species are controlled or eradicated, and management responses are prepared and implemented to	• % of Parties that have established or reviewed national policies or guidelines on invasive wetland species control and management. • % of Parties having a national inventory of invasive alien species that currently or potentially impact the ecological character of wetlands.	The control of invasive alien species may include biological, chemical and/or manual control. Although not specified in the reporting format, chemicals control may be harmful to wetlands, and in such cases other options should be opted.

Goals	Targets	Indicators	Relevance to chemicals and waste MEAs
	prevent their introduction and establishment.		
Goal 2: Effectively Conserving and Managing the Ramsar Site Network	**Target 5:** The **ecological character of Ramsar sites is maintained or restored**, through effective planning and integrated management.	• Number of Ramsar Sites that have effective, implemented management plans. • Number of Ramsar Sites that have effective, implemented management planning. • % of Parties that have made assessments of effective management of Ramsar Sites. • % of Ramsar Sites that have updated Ramsar Information Sheets.	No
	Target 6: There is a significant increase in area, numbers and ecological connectivity in the Ramsar Site network, in particular under-represented types of wetlands including in under-represented ecoregions and Transboundary Sites.	• Number of Ramsar sites that have been designated. • Total hectares of Ramsar sites that have been designated. • Number of transboundary Ramsar Sites that have been designated. • Number of Ramsar Sites[16] designated for the following under-represented wetland types: - Karst and other subterranean hydrological systems – [XXX Sites] - Coral reefs – [XXX Sites] - Wet grasslands – [XXX Sites] - Peatlands – [XXX Sites] - Sea-grass beds – [XXX Sites] - Mangroves – [XXX Sites] - Temporary Pools – [XXX Sites] - Bivalve (shellfish) reefs – [XXX Sites]	No reporting questions have been articulated for this goal.
	Target 7: Sites that are at **risk of change of ecological character** have threats addressed.	• Number of Ramsar Sites removed from the Montreux Record. • % of Parties reporting to the Ramsar Secretariat all cases of negative human-induced change or likely change in the ecological character of Ramsar Sites pursuant to Article 3.2. • Number of Ramsar Sites reported by Parties to the Ramsar Secretariat of negative human-	Pollution is one of the key factors that may cause changes in the ecological character of Ramsar Sites, as specified in Article 3.2

[16] Totals relate to number of sites containing the relevant habitat site: some sites may contain more than one habitat type and so be counted under each habitat

Goals	Targets	Indicators	Relevance to chemicals and waste MEAs
		induced change or likely change in the ecological character of Ramsar Sites pursuant to Article 3.2. • % of Parties that have taken actions to address the issues for which Ramsar Sites have been listed on the Montreux Record.	
Goal 3: Wisely Using All Wetlands	**Target 8:** National wetland **inventories** have been initiated, completed or updated and disseminated and used for promoting the conservation and effective management of all wetlands.	• % of Parties that have complete national wetland inventories. • % of Parties that have updated their national inventories in the last decade.	The questions on inventories focus mainly of the extent and types of wetlands, but open-ended nature of questions allow for adding information on monitoring data, including screening of contaminants.
	Target 9: The wise use of wetlands is strengthened through **integrated resource management** at the appropriate scale, inter alia, within a river basin or along a coastal zone.	• % of Parties that have adopted wetland policies or equivalent instruments that promote the wise use of their wetlands. • % of Parties that consider wetlands as natural water infrastructure integral to water resource management at the scale of river basin.	Integrated resources management of wetlands may be broadly understood to encompass sound management of chemicals and waste although this is not specified in the reporting format.
	Target 10: The **traditional knowledge**, innovations and practices of indigenous peoples and local communities relevant for the wise use of wetlands and their customary use of wetland resources are documented, respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention, with a full and effective participation of indigenous peoples and local communities at all relevant levels.		Traditional knowledge, innovation and practices do not rely on the use of synthetic chemicals and may in some cases provide non-chemical alternatives to agriculture to alleviate pressure on wetlands.
	Target 11: Wetland **functions, services and benefits** are widely	• % of Parties that have made assessment of ecosystem services of Ramsar Sites. • % of Parties that have incorporated wetlands issues into poverty eradication strategies.	No

Goals	Targets	Indicators	Relevance to chemicals and waste MEAs
	demonstrated, documented and disseminated.	• % of Parties that have implemented programmes or projects that contribute to poverty alleviation objectives or food and water security plans.	
	Target 12: **Restoration** is in progress in degraded wetlands, with priority to wetlands that are relevant for biodiversity conservation, disaster risk reduction, livelihoods and/or climate change mitigation and adaptation.	• % of Parties that have established restoration plans [or activities] for sites. • % of Parties that have implemented effective restoration or rehabilitation projects.	The reporting format includes three questions on restoration (questions 12.1-12.3). However, the target and its questions do not directly refer to chemicals or waste, although it is evident that they need consideration in the restoration of wetlands.
	Target 13. Enhanced sustainability of **key sector**s such as water, energy, mining, agriculture, tourism, urban development, infrastructure, industry, forestry, aquaculture and fisheries, when they affect wetlands, contributing to biodiversity conservation and human livelihoods		The reporting format specifies that EIA needs to give consideration possible effects of agriculture, fisheries, forestry and mining on wetlands. (question 13.2)
Goal 4: Enhancing implementation	**Target 14.** **Scientific guidance and technical methodologies** at global and regional levels are developed on relevant topics and are available to policy makers and practitioners in an appropriate format and language.		No reporting questions have been articulated for this goal.
	Target 15: **Ramsar Regional Initiatives** with the active involvement and support of the Parties in each region are reinforced and developed into effective tools to assist in the full implementation of the Convention.	• Number of Regional Initiatives successfully implemented. • % of Parties that have been involved in the development and implementation of a Regional Initiative under the framework of the Convention.	No
	Target 16:	• % of Parties that have branded World Wetlands Day activities.	No

Goals	Targets	Indicators	Relevance to chemicals and waste MEAs
	Wetlands conservation and wise use are mainstreamed through **communication, capacity development, education, participation and awareness.**		
	Target 17: **Financial and other resources** for effectively implementing the 4th Ramsar Strategic Plan 2016 – 2024 from all sources are made available	• % of Contracting Parties that have provided additional financial support through voluntary contributions to non-core funded Convention activities. • % of Parties that have received funding support from development assistance agencies for national wetlands conservation and management.	No
	Target 18: **International cooperation** is strengthened at all levels.	*Regional Initiatives* • Number of Regional Initiatives successfully implemented. • % of Parties that have been involved in the development and implementation of a Regional Initiative under the framework of the Convention. *Other aspects of co-operation* • % of Parties that have established networks including twinning arrangements nationally or internationally for knowledge sharing and training for wetlands that share common features. • % of Parties that have effective cooperative management in place for shared wetland systems (for example in shared river basins and coastal zones). • % of Parties where co-ordination mechanisms for the implementation of MEAs exist at a national level. • Number of Parties which have acceded to the Ramsar Convention. • Total number of transboundary Ramsar Sites.	The reporting format asks whether the national focal points of other MEAs invited to participate in the National Ramsar/Wetland Committee (question 18.1)
	Target 19. **Capacity building** for implementation of the Convention and the 4th Ramsar Strategic Plan 2016 – 2024 is enhanced.	• % of Parties that have made an assessment of national and local training needs for the implementation of the Convention.	No

Table 17. Reporting obligations under the climate regime (UNFCCC and Paris Agreement).

	Categories	Information requests
A. UNFCCC reporting obligations under the National Communications (NCs) for non-Annex I countries (Art. 4.1 and 12.1 of the Convention; decision 17/CP.8).	National greenhouse gas inventory	See section C of this Table
	Measures to facilitate adaption to climate change (Art 12, para 1b-c)	• Scope of vulnerability and adaptation assessment, including identification of vulnerable areas • Approaches, methodologies and tools used, including scenarios for the assessment of impacts of, and vulnerability and adaptation to, climate change • Vulnerability to the impacts of, and their adaptation to, climate change in key vulnerable area • Strategies and measures for adapting to climate change, in key areas, including those which are of the highest priority
	Measures to mitigate climate change (Art 12, para 1b-c)	• Programmes and measures implemented or planned which contribute to mitigating climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol
	Transfer of technology (Article 4, para 5; decision 4/CP.7)	• Activities relating to the transfer of, and access to, environmentally sound technologies and know-how • The development and enhancement of endogenous capacities, technologies and know-how • Measures relating to enhancing the enabling environment for development and transfer of technologies.
	Research and systematic observation	• Climate change research and systematic observation • Research relating to programmes containing measures to mitigate climate change or to facilitate adequate adaptation to climate change; and the development of emission factors and activity data.
	Education, training and public awareness	Activities relating to climate change education, training and public awareness.
	Capacity building	Capacity-building activities, including options and priorities for capacity-building, participation in and promotion of South–South cooperation, and the involvement of stakeholders
	Information and networking	• Efforts to promote information sharing among and within countries and regions, including participation in and contribution to networks, and access to, and use of, information technologies for information exchange
	Constraints and gaps, and related financial, technical and capacity building needs	• Constraints and gaps, and related financial, technical and capacity needs, as well as proposed and/or implemented activities for overcoming the gaps and constraints
B. Paris Agreement reporting obligations under the Biennial Transparency Reports (BTRs) (Art. 13 of	National greenhouse gas inventory	See section C of this Table
	Progress made in implementing and achieving national determined contributions (NDCs) under Article 4	• National circumstances and institutional arrangements • Description of a Party's NDCs, including targets, baselines, timeframes and scope • Information on indicators selected to track progress made in achieving NDCs • Mitigation policies and measures, actions and plans related to achieving NDCs • Summary of GHG emissions/removals, and projections of GHG emissions/removals

	Categories	Information requests
the PA; decision 18/CMA.1).	Climate change impacts and adaptation under Article 7	• National circumstances, institutional arrangements and legal frameworks • Impacts, risks and vulnerabilities • Adaptation priorities and barriers • Adaptation strategies, policies, plans, goals and actions • Progress on implementation of adaptation • Monitoring and evaluation of adaptation actions and processes • Information related to averting, minimizing and addressing loss and damage associated with climate change impacts • Cooperation, good practices, experience and lessons learned
	Information on support provided and mobilized under Art. 9–11 (Developed country Parties report)	• Financial support provided and mobilized • Support for technology development and transfer provided • Capacity-building support provided
	Information on support needed and received under Art. 9–11 (Developing country Parties report)	• Financial support needed and received • Technology development and transfer support needed and received • Capacity-building support needed and received
3. UNFCCC/PA reporting obligations on GHG emissions (based on the Revised 1996 IPCC Guidelines for National GHG Inventories).	Energy	• Fuel-switching • Renewable energy generation • Alternative energy generation • Improving energy efficiency • Reduction of fugitive emissions from fuels
	Industrial processes	• Material substitution • Process or equipment change • Waste treatment • Recovery or recycling
	Solvent and other product use	• Material substitution • Process or equipment change • Waste treatment • Recovery or recycling
	Agriculture	• Livestock productivity management and manure management • Crop management and switching, • Fertilizer management and substitution
	Land-use change and forestry	• Afforestation and reforestation • Forest preservation • Agroforestry • Silviculture • Fire management • Sustainable harvesting

	Categories	Information requests
		• Reduced impact logging • Manufacture of durable wood products
	Waste	• Solid-waste management • Landfill methane recovery • Wastewater management
	Other	