

Kunming-Montreal
Global Biodiversity Framework

Report on the contributions of the chemicals and waste international agreements and frameworks to the Kunming-Montreal Global Biodiversity Framework

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List of acronyms and abbreviations

Full Name / Meaning	
BAT	Best Available Techniques
BEP	Best Environmental Practices
BRS	Basel, Rotterdam and Stockholm conventions
CBD	Convention on Biological Diversity
COP	Conference of the Parties
DGDs	Decision Guidance Documents
EIA	Environmental Impact Assessment
ESM	Environmentally Sound Management
FAO	Food and Agriculture Organization of the United Nations
GFC	Global Framework on Chemicals
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GBF	Kunming-Montreal Global Biodiversity Framework
GMP	Global Monitoring Plan (under the Stockholm Convention)
HHP	Highly Hazardous Pesticides
ICCM5	Fifth International Conference on Chemicals Management
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPEN	International Pollutants Elimination Network
MEA	Multilateral Environmental Agreement
MPPI	Mobile Phone Partnership Initiative
NAP	National Action Plan
NIP	National Implementation Plan
OECD	Organisation for Economic Co-operation and Development
PACE	Partnership for Action on Computing Equipment
PAO	Public Awareness and Outreach
PIC	Prior Informed Consent
POPs	Persistent Organic Pollutants
PWP	Plastic Waste Partnership
SEA	Strategic Environmental Assessment
SGP	Small Grants Programme
UNEP	United Nations Environment Programme
UNEA	United Nations Environment Assembly
UNFCCC	United Nations Framework Convention on Climate Change
UV	Ultraviolet

I. Background

Biodiversity is declining at an alarming rate, faster than ever in human history: approximately 25 percent of species in assessed animal and plant groups are threatened, suggesting that around 1 million species already face extinction unless decisive action is taken to reduce the intensity of drivers of biodiversity loss (IPBES, 2019). This ongoing crisis has catalysed the development of the Kunming-Montreal Global Biodiversity Framework (GBF) and its targets, designed to address the multifaceted challenges of biodiversity loss (UNEP, 2022a).

Pollution, especially from chemicals and waste, has been identified as a main driver of biodiversity loss. Linkages between pollution and biodiversity have been highlighted in various technical reports (IPBES, 2020, pp. 243-245 Chapter 2.2). In this regard, calls for enhanced cooperation have also been made by the governing bodies of chemicals and waste multilateral environmental agreements (MEAs) between the two environmental clusters.

Along with the GBF, the Convention on Biological Diversity (CBD) at the 15th meeting of its Conference of the Parties (COP) adopted a monitoring framework for the GBF in decision 15/5. The GBF monitoring framework is comprised of a set of agreed indicators for tracking progress towards the goals and targets of the GBF. During the 16th meeting of the Conference of the Parties to the CBD, significant progress was made, including the endorsement of technical updates to the headline and binary indicators, the binary indicator questions, and guidance on the monitoring framework provided by the Ad Hoc Technical Expert Group on Indicators, along with other valuable tools. Yet, the need for further development of headline, component, and complementary indicators, was also emphasized and the importance of aligning indicator development with other international agreements to enhance coherence and reduce duplication of efforts was highlighted.

Indeed, achieving these targets requires integrated efforts across all environmental agreements and frameworks, notably those under the chemicals and waste agenda. This includes the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (UNEP, 1989), the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (UNEP 1998) and the Stockholm Convention on Persistent Organic Pollutants (UNEP, 2001) – jointly known as the BRS conventions– as well as the Minamata Convention on Mercury (UNEP, 2013), and the recently established Global Framework on Chemicals – for a planet free of harm from chemicals and waste (GFC) (UNEP, 2023a). These international instruments promote the sound management of hazardous chemicals and waste by adopting measures and tools that help countries prevent practices that threaten the environment and human health.

Moreover, recognizing the importance of the intersection of the BRS conventions in achieving global biodiversity goals, the COPs to the BRS conventions, through their decisions BC-16/22, RC-11/9, and SC-11/21 on international cooperation and coordination with other organizations, welcomed the adoption of the GBF. They also requested the Secretariat, subject to the availability of resources, to prepare a report, including possible recommendations, on how the BRS conventions could contribute to the implementation of the 2030 Targets and 2050 Goals of the GBF.

In March 2024, UNEA adopted resolutions towards promoting synergies, cooperation or collaboration for national implementation of MEAs (UNEA, 2024a) including not only the BRS conventions and the GFC but also other relevant environmental agreements and instruments, for example, the Montreal Protocol on Substances that Deplete the Ozone Layer (UNEP, 1987) which has been safeguarding the ozone layer and mitigating effects of harmful UV radiation and climate change and by doing so, protecting biodiversity, and ecosystems, and the Ramsar Convention on Wetlands of International Importance (UNESCO, 1971) that is focused on the conservation and wise use of wetlands, which are vital for biodiversity and ecological health. Synergies in implementation have great potential to foster national action to address global environmental challenges through increased cooperation between UNEA, UNEP and MEAs (UNEA, 2024b).

The GFC, adopted by the fifth International Conference on Chemicals Management (ICCM5), in Bonn in 2023, provides a vision for a planet free of harm from chemicals and waste, for a safe, healthy and sustainable future – where industry and private sectors are strategic actors to foster innovation, move towards sustainable business models and drive change. It is backed up by a High-Level Declaration, the Bonn Declaration adopted by Resolution V/1, that provides the political drive for its fast implementation and reminds stakeholders commitment to actively promote and support transitions to circular economies.

During the ICCM5, several important resolutions were adopted together with the framework. Resolution V/6 on international cooperation and coordination encouraged all stakeholders to consider, when implementing the GFC, the important interlinkages with chemicals and waste-related aspects of the 2030 Agenda for Sustainable Development, and also those with other instruments and measures for addressing other international development challenges, in particular in relation to poverty, health, food, energy, labour, water, sanitation, climate change and biodiversity loss. Moreover, it welcomed the adoption of the GBF by the Conference of the Parties to the CBD, invited stakeholders to take into account the objectives of that framework in their actions to implement the GFC, and requested the Secretariat to prepare a report on interlinkages between the GFC and the GBF, outlining entry points for enhancing collaboration and cooperation in the implementation of the two frameworks, for consideration by the Conference at its next session.

Relevant steps have already been taken towards fostering collaboration in the implementation of biodiversity and chemicals and waste agreements and frameworks (UNEP 2022b, 2022c). Notably, there has already been significant progress in identifying interlinkages between the GBF targets and the objectives of the MEAs and GFC and opportunities for enhancing coordination and cooperation among the clusters. Contributions were identified through several studies and reports including the study developed jointly with the Secretariat of the Minamata Convention on Mercury, titled “interlinkages between the chemicals and waste multilateral environmental agreements and biodiversity: key insights”, (UNEP, 2021a) and the report of the Bern III Conference on Cooperation among the biodiversity-related conventions for the implementation of the Kunming-Montreal Global Biodiversity Framework Bern (UNEP, 2024a).

These efforts have explored how the frameworks can complement each other, and key achievements include the identification of the need to explore interlinkages; initial mapping of existing interlinkages between objectives and obligations of the GBF, BRS conventions, and GFC; and drafting of possible actions for leveraging these interlinkages.

The coordinated implementation of MEAs and international frameworks will yield numerous co-benefits, such as conserving essential resources like soils, vegetation, and water, while also generating economic advantages like clean drinking water, sustainable agriculture, and reduced societal costs for pollution management and healthcare (Mueller et al., 2023). By aligning efforts across biodiversity protection and chemicals and waste management frameworks, we can achieve the political coherence and coordinated action necessary to deliver substantial and collective benefits to all humanity. The next crucial step is to translate these recommendations into actionable measures. This document seeks to achieve that ultimate goal by identifying the linkages and contributions of the environmentally sound management of chemicals and waste to the GBF targets and by contextualizing how BRS conventions and GFC provisions and actions contribute to their achievement; by highlighting ongoing efforts, initiatives, and activities within these instruments that support countries; and by detailing specific actions to enhance synergies, while ensuring that the strategies identified are effectively operationalized.

II. Scope and structure of the report

Through its sections A and B, the GBF describes its purpose which is to catalyse, enable, and galvanize urgent and transformative action to contribute to the three objectives of the CBD: The conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from the utilization of genetic resources (UNEP, 1993). To achieve this, the Framework sets out an ambitious plan structured around a Vision and Goals for 2050, a Mission, and a set of 23 Targets for 2030 (Sections F, G and H) all aligned with the 2030 Agenda for Sustainable Development (Section D) (see Figure 1).

The GBF explains that achieving the 2030 targets will contribute to the outcome-oriented goals for 2050, which will, in turn, drive progress toward the GBF Vision –"Living in harmony with nature"– and, consequently, towards the three objectives of the CBD.

The Framework also includes considerations for its implementation (Section C) and outlines key elements such as communication and awareness-raising, transparency, and enabling conditions necessary for effective action (Sections I, J and K). Actions to reach the 2030 Targets should be implemented consistently and in harmony with these considerations.

This report highlights the contributions of international chemicals and waste frameworks and agreements to the GBF. Understanding that progress towards the 2030 Targets creates a cascading effect that advances the entire Framework, the document is organized around these targets, proving for each of them an analysis with the following structure:

- An introduction, offering a brief description of the target itself;
- Section i), which presents a clear and direct description of how chemicals and waste management – beyond the scope of multilateral agreements – relates to the specific target;
- Section ii), which outlines a selection of existing efforts under the BRS conventions and the GFC that support the target's implementation. This section does not aim to be exhaustive but rather to highlight specific and representative examples demonstrating how these frameworks contribute to the GBF. While many other examples could be included, this document prioritizes diversity in examples to illustrate different aspects of implementation;
- Section iii), which identifies additional potential opportunities to enhance cooperation and expand contributions;
- A concluding section, presenting a set of guiding questions for GBF national target setting, designed as a starting point for Parties interested in updating their national biodiversity strategies, taking into account potential co benefits from chemical and waste management actions.

The examples in sections ii) and iii), as well as the guiding questions, consider all elements of the GBF, including its considerations for implementation, responsibility and transparency requirements, communication strategies, and enabling conditions. This structure aims to provide a comprehensive and actionable perspective on how sound chemicals and waste management supports the achievement of global biodiversity commitments.

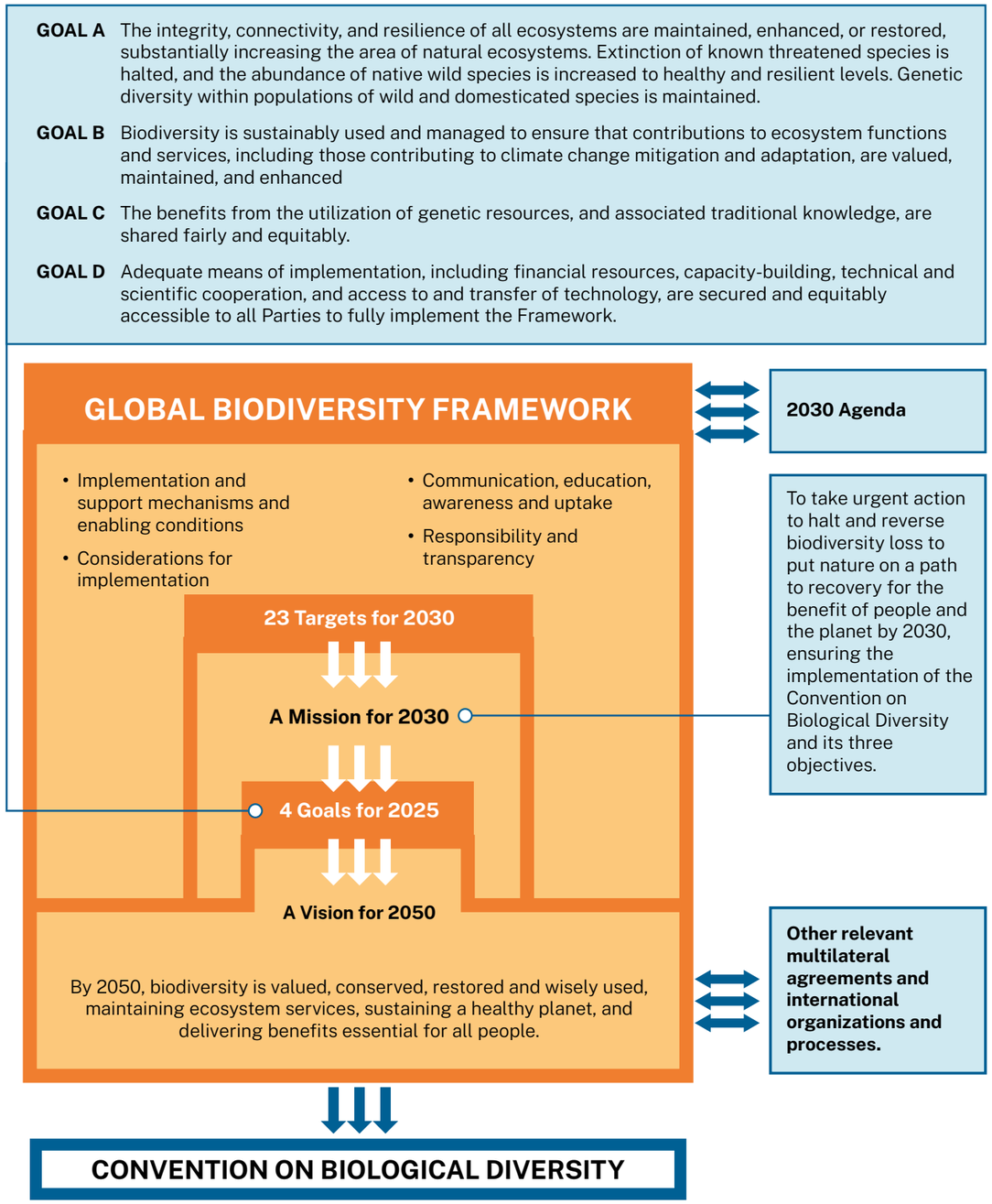


Figure 1. The Kunming-Montreal Global Biodiversity Framework and its interactions with relevant MEAs and international frameworks

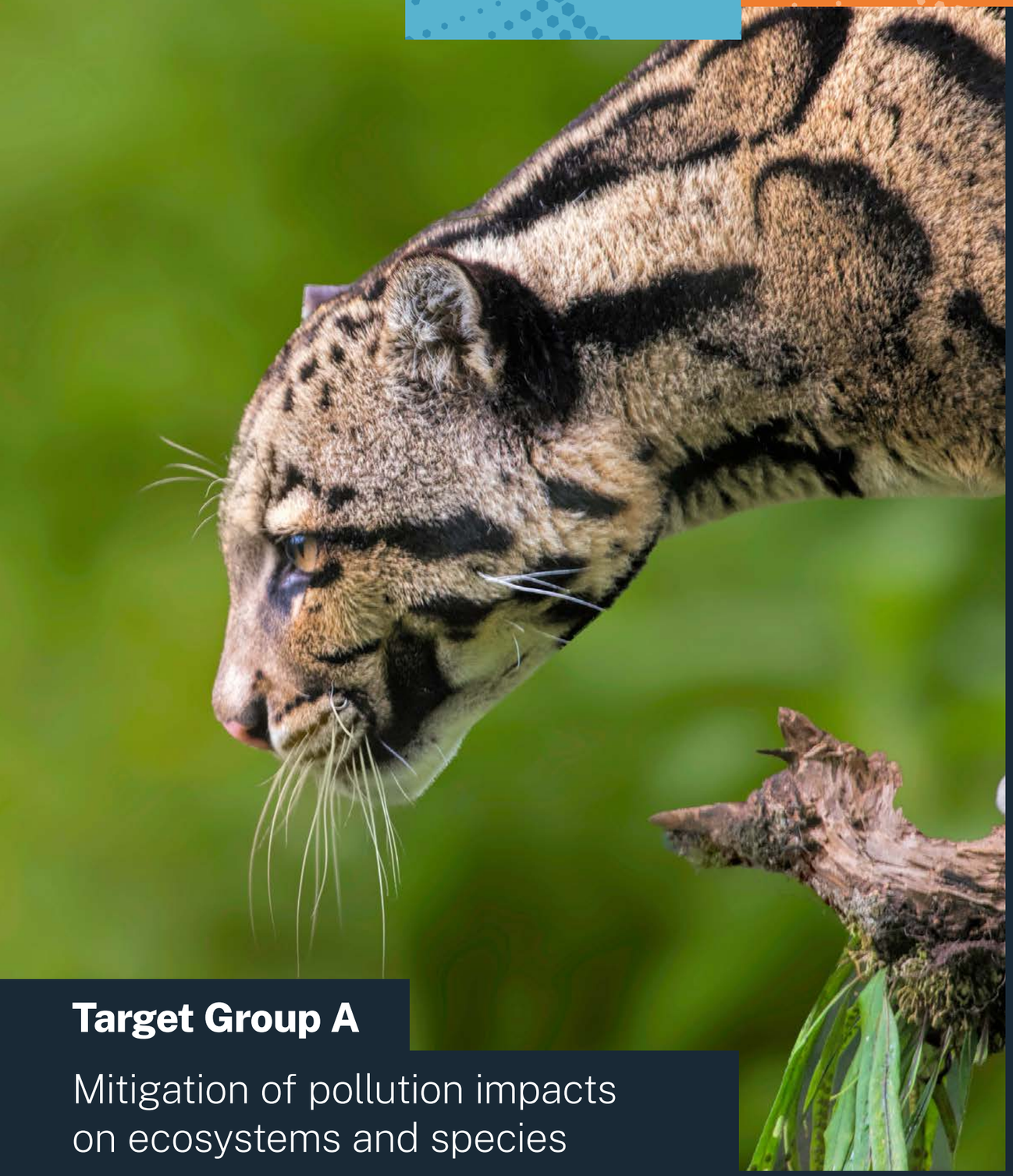
III. An overview of interlinkages, existing efforts and how the BRS conventions and the GFC could contribute to the Global Biodiversity Framework

Effective chemicals and waste management is crucial for reducing biodiversity loss and building resilient ecosystems. However, due to the complexity of these interconnections, the benefits are not always immediately visible. This chapter provides a structured analysis of how the GBF targets align with the objectives and activities under the BRS conventions and the GFC. By examining where actions and strategies intersect, this chapter highlights how chemicals and waste management supports specific GBF goals, enhancing ecosystem health in measurable ways.

To give a clear, practical overview, the targets have been grouped into six key thematic areas where chemicals and waste management can significantly contribute:

- Mitigation of Pollution Impacts on Ecosystems and Species: Targets focused on reducing harmful pollutants that threaten biodiversity and natural habitats (targets 4,6,7, and 8);
- Sustainable Production and Consumption: Targets promoting efficient resource use and minimizing chemical impacts through sustainable practices (targets 10,15, and 16);
- Enhancing Knowledge and Capacity for Informed Decision-Making: Targets that build data, research, and monitoring capabilities to support biodiversity-focused decisions (targets 1,14, 20, and 21);
- Management and Conservation Efforts: Targets that protect and restore ecosystems affected by chemicals and waste (targets 2,3, 11, and 12);
- Mainstreaming Gender Equality and Social Justice: Targets prioritizing inclusive approaches to address the needs of vulnerable communities (targets 22 and 23);
- Integrated Financial Approach: Targets aligning investments and mobilizing resources for biodiversity-supporting, sustainable solutions (targets 18 and 19).

This chapter provides both a broad overview and detailed insight into each thematic area, examining why the sound management of chemicals and waste is essential for achieving each biodiversity target. It outlines the relevance of these efforts, highlights existing and ongoing international initiatives, identifies opportunities for enhanced cooperation, and includes guiding questions to support national target setting within the GBF implementation at the national level. This structure aims to offer a clear and practical approach to leveraging chemicals and waste management resulting in the reduction of biodiversity loss, helping stakeholders advance on the GBF targets effectively.



Target Group A

Mitigation of pollution impacts on ecosystems and species

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The Basel, Rotterdam and Stockholm Conventions and the Global Framework on Chemicals help countries reduce pollution impacts on biodiversity by promoting BAT and BEP for managing hazardous chemicals and waste, encouraging reductions in Persistent Organic Pollutants (POPs), and supporting safer alternatives. By providing guidance on managing chemicals across their lifecycle, along with practical capacity-building, these agreements support countries in actively reducing pollution and fostering resilient, biodiverse ecosystems.

Chemical pollutants disrupt ecosystem functions:

- Pollutants like pesticides, industrial chemicals, and heavy metals are introduced into ecosystems where they were not naturally present. This causes harm by affecting soil health, water quality, and air quality – key elements that ecosystems rely on to function effectively. For example, agricultural runoff containing pesticides and excess nutrients disrupts water ecosystems by causing algal blooms, which deplete oxygen in the water, leading to dead zones where aquatic life cannot survive (Target 7).

Chemical and waste mismanagement accelerates climate change impacts on biodiversity:

- When chemicals and waste are improperly managed, greenhouse gases are released, contributing to climate change; many of the drivers of air chemical pollution (i.e. combustion of fossil fuels) are also sources of greenhouse gas emissions and waste is the largest anthropogenic source of methane (Target 8).
- While some organisms may develop tolerance to certain pollutants, this adaptation often reduces genetic diversity, making species more vulnerable to other stresses like climate change. For instance, a fish population that adapts to a pollutant may lose its resilience to changing water temperatures, reducing its chances of survival in a warming climate (Target 8).

Pollution exacerbates biodiversity loss by disrupting habitats and critically weakening species:

- Environmental contaminants interfere with wildlife reproduction and have driven the decline of species such as the bald eagle, brown pelican, and peregrine falcon due to eggshell thinning caused by pesticide exposure (Target 4).
- Additionally, long-term exposure to chemicals can lead to DNA mutations that affect the health of future generations within a species (Target 4).

Chemical pollutants create vulnerable ecosystems that invasive species (IAS) exploit:

- Pollution from chemicals like heavy metals changes the soil and water composition, making habitats less suitable for native species but creating opportunities for IAS to thrive (Target 6).
- Waste migration, especially plastic waste in marine environments, serves as a carrier for IAS. Marine litter has been shown to transport invasive species across oceans, threatening native biodiversity when these species establish them selves in new ecosystems (Target 6).

Target 7 Reduce pollution to levels that are not harmful to biodiversity....13
Target 8 Minimize the impacts of climate change on biodiversity and build resilience....15
Target 4 Halt species extinction, protect genetic diversity, and manage human-wildlife conflicts....17
Target 6 Reduce the introduction of invasive alien species by 50% and minimize their impact....19



Targets in this group address the reduction of chemical and waste pollution to prevent biodiversity loss and enhance ecosystem resilience.

Target 7: reduce pollution to levels that are not harmful to biodiversity

Reduce pollution risks and the negative impact of pollution from all sources, by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: reducing excess nutrients lost to the environment by at least half including through more efficient nutrient cycling and use; reducing the overall risk from pesticides and highly hazardous chemicals by at least half including through integrated pest management, based on science, taking into account food security and livelihoods; and also preventing, reducing, and working towards eliminating plastic pollution.

(i) Why is the sound management of chemicals and waste relevant for achieving target 7?

The relationship between pollution and the sound management of chemicals and waste is clear. Many types of pollutants are chemicals that are introduced into ecosystems and environmental matrices (air, water, soil, etc.) in excessive amounts or in places where they were not naturally present (Singh et al., 2023). This introduction disrupts ecosystem functions, leading to habitat destruction, species endangerment, and biodiversity loss. Understanding how pollution impacts biodiversity is crucial for developing effective conservation strategies and sustainable environmental management (Verma, 2020).

Climate change, biodiversity loss, and chemical pollution are known interconnected planetary-scale emergencies requiring urgent mitigation. Climate change and biodiversity loss are often studied together, chemical pollution has received much less attention as a driver of global biodiversity decline (Sigmund et al., 2023). Moreover, when chemical pollution is addressed, the focus is often too narrow, concentrating primarily on pesticides while neglecting other harmful pollutants such as industrial chemicals and microplastics. This limited scope prevents a comprehensive approach to managing the full range of pollutants that threaten biodiversity and ecosystems (Groh et al., 2022).

(ii) Existing and ongoing international efforts

- **Elimination of POPs releases from stockpiles and wastes**: Under Article 6 of the Stockholm Convention, Parties are required to ensure that stockpiles and wastes consisting or containing listed POPs, including products and articles containing or contaminated with these substances are managed in an environmentally sound manner. This includes taking appropriate measures to ensure that wastes are handled, collected, transported, stored and disposed safely, ensuring that the POPs content is destroyed or irreversibly transformed and not allowing the recovery, recycling, reclamation or alternative uses of the POPs;
- **Minimization of POP releases from unintentional production**: Under Article 5 of the Stockholm Convention, Parties are required to reduce total releases of chemicals listed in Annex C from anthropogenic sources, aiming to continually minimize and, where feasible, ultimately eliminate these unintentional releases. To achieve this, Parties must develop action plans as part of their National Implementation Plans (NIP) to identify, characterize, and address the releases of unintentional POPs listed in Annex C. To support Parties in creating consistent release inventories of unintentional POPs, the Toolkit for Identification and Quantification of Releases of Dioxins, Furans, and Other Unintentional POPs was developed1. This toolkit ensures that inventories are comparable in format and content, facilitating the identification of priorities, tracking progress, and monitoring changes over time at the national, regional, and global levels2. Moreover, guidance on best available techniques and best environmental practices (BAT and BEP) on unintentional POPs developed under the Stockholm Convention provide the necessary guidance to Parties to minimize their releases of POPs from unintentional production;
- **Promoting safer industrial chemicals and alternatives**: The Stockholm Convention and the GFC (through Target D4) encourage stakeholders to give priority to sustainable solutions and safer alternatives to harmful substances in products and mixtures, including in consumer products, in their research and innovation programmes. By embedding these objectives into a multistakeholder, whole life cycle framework, the GFC fosters the development of integrated strategies that focus on preventing pollution at its source;
- **Addressing pesticides and industrial chemicals under the Rotterdam Convention**: The Rotterdam Convention promotes shared responsibilities and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm. By contributing to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties, the Rotterdam Convention contributes to reducing pollution levels and thus protecting biodiversity;
- **Prevention and minimization of plastic waste pollution under the Basel Convention**: The Basel Convention contributes to efforts to reduce plastic waste pollution and its harmful impacts on biodiversity through technical assistance projects and guidelines for the environmentally sound management (ESM) of plastic waste (UNEP, 2023c). These guidelines provide specific guidance on classifying, handling, recycling, and disposing of plastic waste plastic wastes. In parallel, the Plastic Waste Partnership (PWP) implements pilot projects that enhance capacity-building, waste management, and policy frameworks, helping countries prevent plastic waste accumulation and minimize pollution at its source.

(iii) Potential opportunities for enhancing cooperation

Reducing plastic pollution through collaborative efforts in retail industries: The retail industry is a significant contributor to plastic waste, particularly through packaging. In alignment with Target 7's goal of preventing, reducing, and working towards eliminating plastic pollution, a joint initiative between the Basel Convention's Plastic Waste Partnership, the Global Framework on Chemicals (GFC), and the Biodiversity Convention could focus on promoting innovations in sustainable packaging. By encouraging the use of biodegradable and/or recyclable materials, this collaboration would help reduce plastic pollution at its source. The GFC, working closely with retailers and manufacturers, could drive the transition to safer and more circular alternatives, while the Basel Convention's Plastic Waste Partnership would continue providing technical expertise in reducing plastic waste generation and, when not avoidable, managing it on an environmentally sound manner.

Guiding questions for GBF national target setting

i. What kinds of chemicals and waste pollution affecting biodiversity have been identified in your country? Is there a plan to remediate the contamination or to mitigate its impact? And to eliminate the sources of pollution?

ii. How are chemicals and waste management strategies integrated into national plans to reduce pollution risks to biodiversity?

iii. What steps are being taken to promote innovation in developing safer chemical alternatives that reduce pollution at its source?

iv. How can partnerships with the GFC and the BRS conventions be strengthened to reduce pollution from chemicals and waste

1 https://www.pops.int/tabid/372/default.aspx
2 https://chm.pops.int/tabid/9559/Default.aspx



Targets in this group address the reduction of chemical and waste pollution to prevent biodiversity loss and enhance ecosystem resilience.

Target 8: minimize the impacts of climate change on biodiversity and build resilience

Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

(i) Why is the sound management of chemicals and waste relevant for achieving target 8?

Many of the anthropogenic drivers of air pollution (i.e. combustion of fossil fuels) are also sources of greenhouse gas emissions. Policies to reduce air pollution, therefore, offer a win-win strategy for both climate and health, lowering the burden of disease attributable to air pollution, as well as contributing to the near- and long-term mitigation of climate change.

There is a twofold relationship between chemicals and waste management and the impacts of climate change on biodiversity. On one hand, populations that adapt to chemical pollution stressors may lose their ability to adapt to other stressors, such as the effects of climate change (Dixon et al., 2018; McGuigan et al., 2021; Ashe et al., 2021). This is because adaptation to the presence of a certain chemical can lead to reduced genetic diversity, limiting the interindividual variability within a population that is crucial for responding to climate change. On the other hand, climate change can alter the fate and toxicity of chemicals in the environment. For example, changes in temperature and pH levels can affect the uptake and bioavailability of chemicals, further compounding the impacts on biodiversity (Groh et al., 2022).

Pursuant to their decisions on international cooperation and coordination with other organizations (BC-16/22, RC-11/9, and SC-11/21), the conferences of the Parties to the Basel, Rotterdam, and Stockholm conventions noted that actions taken under the conventions contribute to achieving the UNFCCC's objectives. This recognition of the conventions' contributions to addressing climate change is based on scientific evidence that climate change and pollution often have joint sources and exert combined and mutually reinforcing pressures on the environment and human health (UNEP, 2021b)[3].

(ii) Existing and ongoing international efforts

- **Basel Convention's contributions to climate mitigation:** The Basel Convention helps mitigate climate change by promoting the reduction of waste generation and the environmentally sound management of waste, which is the largest anthropogenic source of methane (around 20% of global methane emissions) (GAIA, 2022). The Convention supports the waste hierarchy (prevention, minimization, reuse, recycling, other types of recovery, including energy recovery, and final disposal). These actions have the potential to reduce significant greenhouse gas emissions across value chains, while also contributing to green job creation;
- **Basel Convention's contributions to climate change resilience and adaptation:** The Basel Convention helps build resilience in vulnerable communities by addressing the impacts of improper waste management on climate-related disasters. For example, mismanaged waste can worsen flooding by blocking drainage systems or contribute to the spread of diseases from informal waste sites during extreme weather events. Additionally, the combination of unmanaged waste and rising temperatures increases the risk of uncontrolled fires, especially in regions with high vulnerability to droughts;
- **(iii) The Stockholm Convention's contributions to climate mitigation:** The Stockholm Convention's application of Best Available Techniques (BAT) and Best Environmental Practices (BEP) in major sources of unintentional POPs (e.g., fossil-fuel fired utility and industrial boilers, metallurgical industries, and open burning of wastes) results in reductions of greenhouse gas emissions. By eliminating toxic chemicals from products, the Convention increases the recyclability of materials and reduces the demand for new raw material extraction, further contributing to climate mitigation efforts[4]. Finally, in the case of the environmentally sound management of polychlorinated biphenyls (PCBs), the replacement or repairment of old contaminated equipment promotes the reduction of electricity losses enhancing energy efficiency in the production, transport and distribution of electricity;
- **The Stockholm and Rotterdam conventions' synergy with climate resilience:** By limiting the release of Persistent Organic Pollutants (POPs), the Stockholm Convention helps reduce the long-term stress on ecosystems, contributing to greater resilience in the face of climate change. In the same line, by delivering technical assistance, the Secretariat of the Rotterdam Convention, in collaboration with various partners, helps countries to undertake concerted actions towards pesticide risk reduction, including through safer alternatives and techniques for managing pests[5] that may be intensified by climate change related conditions (FAO, 2022). These efforts align closely with Target 8's objective of increasing ecosystem resilience while addressing chemical pollutants that exacerbate climate-related impacts on biodiversity;
- **GFC and the triple planetary crisis:** Under Target E6 of the GFC, stakeholders aim to identify and strengthen synergies between chemicals and waste management and other key environmental and health policies. These include links to climate change mitigation, biodiversity conservation, and human rights protection, among others. This target seeks to create integrated solutions that address pollution while advancing global climate and biodiversity goals.

(iv) Potential opportunities for enhancing cooperation

- **Emphasizing biodiversity and climate change outcomes in GFC Fund proposals:** The GFC Fund aims to build the long-term capacity for the safe, sustainable management of chemicals and waste. This fund could support projects that include the positive expected effects of their activities on biodiversity conservation and fight against climate change in addition to other high impact benefits;
- **UNFCCC's supporting BRS conventions and GFC initiatives:** UNFCCC financial bodies could support implementation of the Basel, Rotterdam, Stockholm conventions, and the GFC by integrating their waste and chemical management initiatives into climate adaptation and mitigation strategies. Strengthening cooperation on shared goals, such as reducing chemical pollution that exacerbates climate change and fostering ecosystem-based adaptation, would help these frameworks scale their efforts and contribute to achieving both climate and biodiversity targets.

Guiding questions for GBF national target setting:

i. What measures are in place to monitor how climate change affects the fate and toxicity of chemicals in the environment? (Promotes understanding of how changing environmental conditions influence the impact of chemical pollutants on ecosystems.)

ii. How can chemical pollution stressors be managed to avoid compromising the adaptive capacity of species to other climate-related stressors?

iii. What role do the Basel, Rotterdam, and Stockholm conventions and the GFC play in supporting climate mitigation and adaptation strategies through improved chemical and waste management?

3 https://www.brsmeas.org/tabid/9891/language/en-US/Default.aspx

4 https://www.pops.int/tabid/9646/Default.aspx

5 https://www.pic.int/tabid/8078/language/en-US/Default.aspx



Targets in this group address the reduction of chemical and waste pollution to prevent biodiversity loss and enhance ecosystem resilience.

Target 4: halt species extinction, protect genetic diversity, and manage human-wildlife conflicts

Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.

(i) Why is the sound management of chemicals and waste relevant for achieving target 4?

Chemicals present a significant threat to species conservation and genetic diversity. Both long-term, low-level exposure and acute events like oil spills have been linked to population declines. The International Union for Conservation of Nature, author of the Red List of Threatened Species includes Pollution as of the eleven key threats for biodiversity[6]. It specifically assesses the impact of wastewater, industrial effluents, waste, and agriculture, among others.

Beyond immediate toxicity effects, chemical contamination can cause DNA mutations that are passed down through generations. Environmental contaminants impair wildlife reproduction and have contributed to the disappearance of populations of species such as the bald eagle, brown pelican, and peregrine falcon (Bickham et al., 2000). While some organisms may adapt to chemical exposure, this adaptation often comes at the cost of reduced genetic diversity, weakening their ability to cope with other environmental threats, such as climate change. For example, a population that adapts to one chemical may lose its resilience to rising temperatures or drought conditions (Groh et al.).

(ii) Existing and ongoing international efforts

- **Assessing and restricting POPs that can affect threatened species**: The Stockholm convention includes information requirements and screening criteria for listing chemicals in its Annexes A, B, and C. In this context to submit a proposal to list a chemical under the Convention, a Party must provide detailed information about the chemical's persistence, bioaccumulation, and potential for long-range environmental transport and adverse effects. The criteria on adverse effects include any evidence of adverse effects to the environment that justifies consideration of the chemical within the scope of this Convention; or ecotoxicity data that indicate the potential for damage to the environment. These criteria ensure that chemicals posing significant threats to biodiversity, including species extinction and genetic diversity loss, are identified and addressed globally;
- **Rotterdam Convention - capacity building projects**: The Rotterdam Convention Secretariat implements short-term projects, typically lasting 6 to 12 months, aimed at helping countries build capacity to assess and mitigate chemical risks to the environment and human health. Funded by FAO, these projects are executed in collaboration with governments, academic institutions, research centres, NGOs, and ministerial departments. This type of cooperation enhances the ability of countries to prevent species decline linked to hazardous substances, while fostering cross-sector collaboration to mitigate other environmental challenges.

(iii) Potential opportunities for enhancing cooperation

- **Addressing ecotoxic hazards under the Basel Convention**: Under Annex III of the Basel Convention, waste is classified as hazardous if it exhibits certain characteristics, including "H12 – Ecotoxic", which refers to substances that present immediate or delayed risks to the environment, particularly aquatic ecosystems and wildlife. Additionally, the Expert Working Group on the Review of Annexes has been reviewing and refining the criteria for classifying hazardous wastes, with a particular focus on strengthening the ecotoxicity definition to improve the identification and control of waste that threatens biodiversity7;
- **Monitoring hazardous chemical levels in endangered species**: The Secretariats of BRS conventions and GFC could focus their monitoring efforts to assess the levels of chemicals and their impacts on endangered species, through cooperation with institutions specializing in species protection and conservation and develop guidance and standardized approaches for these assessments. This collaboration could integrate monitoring efforts across controlled environments (such as captivity or ex-situ conservation) and natural habitats, comparing chemical presence on genetic diversity and species health in different regions.

Guiding questions for GBF national target setting

i. What measures are in place to assess and mitigate the impacts of chemical pollutants on the reproductive health and survival of native species?

ii. What strategies are being implemented to monitor and control the levels of hazardous chemicals in habitats critical to threatened and endangered species?

6 https://www.iucnredlist.org/search?threats=9&searchType=species

7 https://www.basel.int/Implementation/LegalMatters/LegalClarity/Meetings/6thRAEWGmtg/tabid/9633/Default.aspx

Targets in this group address the reduction of chemical and waste pollution to prevent biodiversity loss and enhance ecosystem resilience.



Target 6: reduce the introduction of invasive alien species by 50% and minimize their impact

Target 6 aims to eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent, by 2030, eradicating or controlling invasive alien species especially in priority sites, such as islands.

(i) Why is the sound management of chemicals and waste relevant for achieving target 6?

Several pathways can link chemicals and waste to the introduction of invasive alien species (IAS). Firstly, chemical pollutants weaken ecosystems by modifying habitats' natural characteristics. This can make them more vulnerable to IAS as they reduce the resilience of native species, which are often outcompeted by IAS in degraded environments. Heavy metals for example, can alter soil and water chemistry, impairing certain native plant and aquatic life while creating niches that (IAS) can exploit (Crooks et al., 2011). Moreover, Waste transport and migration can also facilitate the introduction of invasive species, as IAS can travel on waste shipments or urban litter that reaches water bodies. For instance, marine litter has been linked to the spread of alien species such as Arthropoda, Mollusca, and Bryozoa. Specifically, plastic waste, due to its buoyancy and persistence (Mghili et al., 2023).

(ii) Existing and ongoing international efforts

Ship waste management guidance: The Basel Convention, in cooperation with the International Maritime Organization (IMO), has developed specific guidelines for the environmentally sound management of ship dismantling and ship waste1. The Ballast Water Management (BWM) Convention, adopted by the IMO, mandates that ships manage their ballast water to prevent the introduction of invasive alien species (IAS) across marine ecosystems. This collaboration promotes stringent waste management controls, helping to mitigate IAS spread via shipborne waste.

Potential opportunities for enhancing cooperation

Share transferable knowledge from the Basel Convention Export and import Tool: The Basel Convention developed the Export and Import Control Tool2 that guides users through the legal requirements for transboundary movements of waste, assisting them in determining if a substance qualifies as waste under the Convention and outlines the legal requirements for transboundary movements. By sharing lessons learned from the Basel Convention's tool and fostering cooperation between the BRS conventions and the CBD, Parties can explore the development of a similar tool for invasive alien species.

Guiding questions for GBF national target setting:

i. How are chemicals and waste management practices being integrated into strategies to prevent the introduction and spread of invasive alien species?

ii. How is the impact of waste transport and marine litter on the spread of invasive alien species being monitored and controlled?

iii. How are international guidelines, such as those from the Basel Convention and the Ballast Water Management (BWM) Convention, being implemented to prevent IAS spread through shipborne waste?

1 https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/Biofouling%20pages/BWM.2-Circ.13-Rev.5.pdf

2 https://www.basel.int/tabid/4284/Default.aspx



Target Group B

Sustainable production and consumption

BASEL | ROTTERDAM | STOCKHOLM CONVENTIONS

UN environment programme | Global framework on chemicals

Target group B

This group focuses on driving sustainable production and consumption practices that minimize the environmental impact of chemical pollutants, promoting lifecycle management and reducing risks to biodiversity.

The Basel, Rotterdam and Stockholm Conventions and the Global Framework on Chemicals help promote safer production and consumption patterns by setting standards for hazardous chemicals, encouraging the phase-out of harmful substances, and advancing sustainable alternatives across industries. By providing technical guidance on best available techniques and best environmental practices, these agreements help businesses identify and implement practices that minimize harmful discharges and support biodiversity.

Lack of environmental monitoring in low-income, high-biodiversity regions makes it difficult to track pollution threats

- Sound chemicals management directly supports knowledge-building efforts essential for conservation (Target 20).
- Without data on chemical pollution, especially in biodiversity-rich regions, conservation strategies risk being ineffective (Target 21).

Open access to chemical hazard information empowers communities and decision-makers

- Open access to chemical hazard information empowers communities and decision-makers
- Pollution from chemicals is a growing threat to biodiversity, and understanding its impacts requires collaboration across sectors (Target 14).
- Cross-sectoral knowledge on chemicals and waste management supports comprehensive decision-making in biodiversity planning (Target 14).
- It allows them to engage meaningfully in biodiversity-related governance, supporting inclusive conservation efforts (Target 21).

Uncoordinated expansion of urban, agricultural, and industrial development often result in the loss of ecosystems degradation driven by unsustainable use of land and sea

- These activities fragment habitats and introduce chemicals and waste-related pollutants that disrupt ecosystems (Target 1).
- By reducing the release and exposure to pollutants in sensitive areas, including populated and protected zones, sound chemical and waste management helps minimize contamination risks (Target 1).

Target 15 Businesses assess, disclose, and reduce biodiversity-related risks and negative impacts 23
Target 10 Enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and forestry 25
Target 16 Enable sustainable consumption choices to reduce waste and overconsumption..... 27



This group focuses on driving sustainable production and consumption practices that minimize the environmental impact of chemical pollutants, promoting lifecycle management and reducing risks to biodiversity.

Target 15: businesses assess, disclose and reduce biodiversity - related risks and negative impacts

Target 15 aims to take legal, administrative or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions: a) regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity, including with requirements for all large as well as transnational companies and financial institutions along their operations, supply and value chains and portfolios; b) provide information needed to consumers to promote sustainable consumption patterns; c) report on compliance with access and benefit-sharing regulations and measures, as applicable; in order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.

(i) Why is the sound management of chemicals and waste relevant for achieving target 15?

Chemical pollution, from direct sources, including industrial discharges, and indirect sources, such as diffuse pollution from consumer products, can have profound and long-lasting impacts on ecosystems. For example, over 40% of European freshwater sites are contaminated with organic pollutants at levels likely to cause long-term harm to sensitive species[1]. In this sense, companies play a central role in mitigate harmful effects on ecosystems by regularly assessing and transparently disclosing the chemical and waste risks linked to biodiversity[2].

On the other hand, healthy ecosystems provide many services to businesses such as carbon storage, water regulation or pollinator services. Therefore, integrating biodiversity protection into corporate sustainability strategies not only addresses the environmental burden on biodiversity but also ensures long-term sustainability for industries that rely on ecosystem services for their own functioning[3].

(ii) Existing and ongoing efforts

- **Transparency and innovation supported by the GFC**: Efforts under the Global Framework on Chemicals are critical to achieving Target 15, as they emphasize the need for businesses to innovate in chemical monitoring and disclose data transparently throughout the chemical life cycle. Stakeholders are called to generate comprehensive data on the production, use, emissions, and environmental releases of chemicals (Targets B1 and B3), ensuring that these data are publicly accessible. Companies are also encouraged to invest in sustainable chemistry (Target D1) and implement preventive measures ensuring that environmental risks are minimized (Targets D3, D6 and A3). These integrated efforts are essential for strengthening extended producer responsibility systems, tracing and mitigating cumulative impacts on ecosystems, supporting sustainable production and biodiversity protection;
- **Reviewing and updating BAT/BEP guidelines under the Stockholm Convention**: The ongoing review of Best Available Techniques and Best Environmental Practices under the Stockholm Convention directly supports target 15 by providing up-to-date guidance for managing persistent organic pollutants (POPs), which have severe implications for biodiversity. These guidelines, focusing on chemicals such as UV-328, short-chain chlorinated paraffins (SCCPs), and polybrominated diphenyl ethers (PBDEs), help industries minimize pollutant emissions throughout their value chains. By aligning industrial practices with these updated guidelines, companies can better assess, disclose, and mitigate their biodiversity-related risks;
- **Implementation of the Globally Harmonized System (GHS) for Chemical Safety**: The GFC is working to ensure that by 2030, all governments have implemented the GHS. This system standardizes how chemical hazards are classified and communicated, ensuring consistent labelling and safety data sheets across sectors. The GFC provides guidance and technical assistance to countries, helping them adapt the GHS to their national contexts and consequently improving the clarity of chemical hazard information, safer chemical handling and storage, reducing the likelihood of harmful substances entering ecosystems.

(iii) Potential opportunities for enhancing cooperation

- **Integrated chemical management - biodiversity protection tools for specific sectors**: In order to achieve nature-positive action at the scale and speed required, it is crucial for businesses to understand their specific interactions with nature within their sectors (World Economic Forum, 2023). GFC and the BRS conventions could work together to create crosscutting approaches that integrate chemical management and biodiversity protection for specific sectors. For instance, sector-specific guidelines could encourage the use of non-toxic materials and reduce hazardous chemical waste across global supply chains. This integrated approach would support not only the reduction of chemical impacts but also the enhancement of biodiversity resilience, ensuring that companies meet both biodiversity and chemical safety goals.

Guiding questions for GBF national target setting:

i. What type of businesses/industry sectors are a priority for your country when it comes to chemicals and waste impacts on biodiversity (i.e. textile, construction, electronic, mining, cosmetic sectors)?

ii. How are businesses currently assessing the risks and impacts of chemicals and waste on biodiversity within their operations, supply chains, and value chains?

iii. Are there any policies, regulations or voluntary standards to promote disclosure of information on chemicals and waste-related impacts on biodiversity by large and transnational companies? (Highlights the need for transparency in how businesses contribute to or mitigate chemical pollution and its effects on ecosystems).

iv. Is the Globally Harmonized System (GHS) for chemical classification being implemented to improve chemical safety and reduce pollution risks to biodiversity?

v. Are there specific chemicals or types of waste that pose a high risk to biodiversity in the sectors where businesses operate? (Aims to help businesses identify the most critical pollutants in their sectors and develop targeted actions.)

vi. How are companies being encouraged to adopt Best Available Techniques (BAT) and Best Environmental Practices (BEP) to reduce the release of hazardous chemicals that threaten biodiversity?

vii. What mechanisms are in place for businesses to monitor and disclose the impacts on health and the environment of chemicals they depend on for their operations on?

viii. How are businesses addressing the chemical footprint and the cumulative impact of chemical pollutants in their value chains? (Encourages companies to consider the long-term effects of chemicals in their products and practices to shift towards more sustainable solutions.)

1 https://chemtrust.org/biodiversity_strategy/
2 https://cefic.org/media-corner/newsroom/biodiversity-considerations-should-be-integrated-into-chemical-industrys-business-strategies/
3 https://report.basf.com/2022/en/managements-report/sustainability-along-the-value-chain/safe-and-efficient-production/in-focus-biodiversity.html



This group focuses on driving sustainable production and consumption practices that minimize the environmental impact of chemical pollutants, promoting lifecycle management and reducing risks to biodiversity.

Target 10: enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and forestry

Target 10 aims to ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches contributing to the resilience and long-term efficiency and productivity of these production systems and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services.

(i) Why is the sound management of chemicals and waste relevant for achieving target 10?

Sustainable production systems, central to this target, depend on the integrity of ecosystem services such as nutrient cycling, soil fertility, and pest regulation. These ecosystem services are directly affected by the misuse of hazardous chemicals, such as pesticides and synthetic fertilizers, which disrupt biodiversity and the ecological functions that support food production systems (Cuming & Bromley, 2023).

For example, chemicals and waste management have a strong connection to the agricultural component of Target 10, particularly regarding the use of pesticides. Agricultural production has faced increasing pressure to meet the demands of a growing global population. In 2022, pesticide use in agriculture reached 3,70 million tonnes of active ingredients, reflecting a 4% increase from 2021, and a doubling since 1990 (FAO, 2024). However, extensive and indiscriminate pesticide application affects insect populations and non-target organisms by disrupting their growth, behaviour, and physiological processes. Despite management effort, legacies of past activities or unmanaged chemical use and release, poor governance and gaps in knowledge lead to chemicals still being released into the soil environment. Progressive advances in chemical analysis methods for soils allow increasingly accurate measurements of soil contaminants supporting monitoring applications (FAO, 2020).

Studies have shown that pesticide use has affected non-target species and contributes to a 76% decline in flying insect populations and a 78% decline in ground-foraging arthropods, undermining ecosystems, pollination, nutrient cycling, and overall resilience (Quandahor et al., 2024).

Beyond agriculture, sectors such as aquaculture and forestry also experience similar pressures. BRS and GFC frameworks encourage the phase-out of highly hazardous pesticides and support the transition to non-chemical alternatives, contributing to both halting biodiversity loss and sustainable production systems.

(ii) Existing and ongoing efforts

- **Implementing agroecological solutions and non-chemical alternatives in agriculture**: Under Target A7, the GFC works with stakeholders to phase out highly hazardous pesticides in agriculture, focusing on regions where risks have not been managed effectively. This includes providing support for transitioning to safer, affordable alternatives through technical assistance and policy recommendations. Additionally, Target D5 encourages governments to implement policies that promote agroecology, integrated pest management (IPM), and non-chemical alternatives, supporting more sustainable agricultural practices while minimizing chemical risks. These efforts foster resilience and sustainability in agriculture;
- **Facilitating safer use of pesticides and industrial chemicals through informed decision-making**: The Rotterdam Convention's Prior Informed Consent (PIC) procedure ensures that countries receive critical information about the risks associated with hazardous chemicals, enabling them to make informed decisions and transition to safer alternatives. In addition, the Convention's secretariat supports capacity-building efforts, including webinars, workshops, and the development of guidance documents, to help countries adopt sustainable pest management strategies. Additionally, under Article 6 of the Rotterdam Convention, any Party that is a developing country or an economy in transition that is experiencing problems caused by a Severely Hazardous Pesticide Formulation (SHPF), either due to human health or environmental problems in its territory may make a proposal to the Secretariat for the inclusion of the formulation in Annex III of the Convention;
- **Prohibiting harmful chemicals to protect biodiversity and sustainable production systems**: The Stockholm Convention contributes directly to Target 10 by eliminating or restricting the use of persistent organic pollutants, many of which have been widely used in agriculture, aquaculture, and forestry. POPs such as endosulfan – a pesticide formerly used on crops like cotton and vegetables – are highly toxic to non-target species, including pollinators like bees and beneficial insects. Endosulfan has been linked to neurological and reproductive effects in insects and vertebrates, contributing to pollinator decline and disrupting natural pest control and crop productivity. By listing such chemicals for elimination or restriction, the Stockholm Convention reduces environmental contamination and supports the transition to safer, biodiversity-friendly practices. This, in turn, ensures the ecological functions essential for resilient food production systems, such as pollination, pest regulation, and soil health.

(iii) Potential opportunities for enhancing cooperation

- **Strengthening synergies with the Global Alliance on Highly Hazardous Pesticides (GAHH) for sustainable agriculture and food-waste management**: The Global Alliance on HHPs was proposed and endorsed at the Fifth Meeting of the International Conference on Chemicals Management (ICCM5) in September 2023 and the GFC welcomed and endorsed its creation through Resolution V/114. Aligning the Alliance's efforts with GFC's and the Rotterdam Convention's activities could leverage existing multi stakeholder efforts to drive the adoption of BAT and BEP for reducing chemical risks to biodiversity. This partnership could also extend to incorporating food waste management into GFC activities, supporting the GBF's goal of achieving food security while minimizing environmental impacts.

Guiding questions for GBF national target setting:

i. Are there specific chemicals or pollutants identified as high-risk for biodiversity in agriculture, aquaculture, fisheries, or forestry? (Helps identify priority substances that need targeted interventions to reduce their impact on ecosystems.)

ii. What measures are in place to monitor the impact of chemical use on non-target organisms, including pollinators and soil biodiversity, in these production systems? (Highlights the need to assess the broader ecological effects of chemical use to support biodiversity-friendly practices.)

iii. What Customs monitoring tools are in place to inform importing countries of any high-risk substance being exported to them (i.e. Rotterdam Convention's PIC procedure) and/ or to detect any being imported?

iv. What instruments or policies are in place to identify and deal with illegal trade of pesticides?

v. What policies exist to promote the adoption of BAT and BEP for chemicals and waste management in these sectors? (Aims to align sector-specific practices with international guidelines to minimize chemical risks.)

vi. How are businesses in these sectors being incentivized to adopt biodiversity-friendly practices that also minimize chemical waste?

vii. How are the principles of integrated pest management being applied to minimize the ecological impact of pesticides on non-target species? And what are the key outcomes/results of the application of these principles?

4 https://www.chemicalsframework.org/page/resolution-v11-highly-hazardous-pesticides.



This group focuses on driving sustainable production and consumption practices that minimize the environmental impact of chemical pollutants, promoting lifecycle management and reducing risks to biodiversity.

Target 16: enable sustainable consumption choices to reduce waste and overconsumption

Target 16 aims to ensure that people are encouraged and enabled to make sustainable consumption choices including by establishing supportive policy, legislative or regulatory frameworks, improving education and access to relevant and accurate information and alternatives, and by 2030, reduce the global footprint of consumption in an equitable manner, including through halving global food waste, significantly reducing overconsumption and substantially reducing waste generation, in order for all people to live well in harmony with Mother Earth.

(i) Why is the sound management of chemicals and waste relevant for achieving target 16?

Chemicals in consumer products can easily enter ecosystems during their end-use and disposal stages, significantly impacting ecosystem health and placing consumers in a pivotal role for biodiversity protection.

Because of their specific intended use, some chemicals present in products and articles can be in direct contact or released to the environment and can degrade into harmful compounds. An example are UV blockers in sunscreens that can degrade in benzophenone which causes liver morbidity and homeostatic distress in mammals (Mueller et al., 2023). Other products containing chemicals can still severely affect ecosystems if not disposed of properly. Such is the case of flame retardants present for example in consumer electronics, which have been linked to behavioural and physiological disturbances in aquatic organisms. To address these challenges, it is crucial to promote the investigation of impacts of chemical and safer alternatives as well as environmentally sound waste management practices; so that consumers can have access to accurate information about the environmental effects of the products they use as well as best practices for using and disposing them in a safely manner.

(ii) Existing and ongoing international efforts

- **Enhancing information availability on sustainable management in the chemical sector**: The GFC is instrumental in supporting the goals of Target 16 by promoting transparency and sustainable management practices throughout the chemical value chain. Target B2 of the framework calls for stakeholders to make reliable information on chemicals in materials and products available throughout the value chain by 2030. This transparency is essential for enabling consumers to make informed choices and for driving the demand for products that have a reduced environmental impact. Additionally, Target D6 focuses on the development and implementation of sustainable chemical and waste management strategies for major economic and industry sectors. By identifying priority chemicals of concern and applying approaches like the chemical footprint, these strategies aim to reduce the impact of chemicals along the value chain driving global progress toward enabling sustainable consumption choices;
- **Addressing waste from end-consumer products**: The Basel Convention plays a critical role in addressing waste reduction and mitigating the impact that waste from end-consumer products can have on biodiversity, specifically through efforts to implement its Article 4.2.(a): "Each Party shall take the appropriate measures to: (a) Ensure that the generation of hazardous wastes and other wastes within it is reduced to a minimum, taking into account social, technological and economic aspects" E-waste for example is a rapidly growing global waste stream, containing hazardous substances harmful to ecosystems. Initiatives like the Mobile Phone Partnership Initiative (MPPI) and the Partnership for Action on Computing Equipment (PACE) have significantly improved recycling processes and reduced illegal e-waste trafficking. The Household Waste Partnership also promotes the environmentally sound management of household waste including its prevention and minimization and has developed a Guidance Document on the Environmentally Sound Management of Household Waste5. The Convention also addresses waste containing POPs, providing guidelines to prevent their release and protect environmental and human health. Furthermore, amendments to Annexes II, VIII, and IX, strengthens the regulation of both hazardous and non-hazardous e-waste under the Prior Informed Consent Procedure (PIC).

(iii) Potential opportunities for enhancing cooperation

- **Developing a Database from Basel Convention reports to enhance consumer education on waste impacts: The Basel Convention national reports include the question:** "Are statistics (e.g., studies, reports) available, compiled by your country, on the effects of hazardous wastes and other wastes on human health and the environment?" This presents an opportunity to develop a database with the responses. Such a database would enable parties to create awareness campaigns, helping consumers understand the importance of minimizing their waste and choosing products that have a lesser impact at the end of their lifecycle;
- **The Small Grants Programme on Plastic Waste (SGP) towards consumer education on environmentally sound management of plastics**: The SGP supports low-cost, high-impact projects to enhance the environmentally sound management of plastic waste, working through Basel and Stockholm Convention regional centres to improve collection, sorting, recycling, and disposal[6]. Expanding the programme to include initiatives that promote consumer education on sustainable plastic use, recycling behaviours, and waste prevention strategies would help drive more sustainable consumption choices. This could include developing guidelines on reducing plastic waste at the consumer level, fostering policy dialogues on integrating circular economy principles into national consumption policies, encouraging product designs that minimize waste and facilitate recycling, or ensuring that sustainable consumption practices are embedded throughout the product lifecycle.

Guiding questions for GBF national target setting:

i. How are chemicals and waste management considerations integrated into national policies and strategies to promote sustainable consumption? (Encourages a focus on ensuring that chemical impacts are addressed within frameworks that guide consumer behaviour toward sustainability)

ii. What policies are in place to support the safe disposal of consumer products containing hazardous substances, such as e-waste and plastics?

iii. What national strategies are being implemented to phase out chemicals of concern in products that are commonly disposed of by consumers?

iv. What steps are being taken to increase public awareness about the chemical content of consumer products and their environmental impacts during use and upon disposal?

v. What strategies or mechanisms are being implemented to ensure businesses to disclose chemical information in their products, supporting consumers in making sustainable purchasing decisions?

vi. How is information about safer alternatives to harmful chemicals communicated to consumers?

vii. Are there opportunities to utilize Basel Convention reports to develop public awareness campaigns on the environmental effects of consumer waste? (Encourages the use of available data to educate consumers about the importance of waste minimization and the environmental impacts of their consumption patterns)

5 https://www.basel.int/Implementation/HouseholdWastePartnership/OverallGuidanceDocument/tabid/8227/Default.aspx

6 https://www.basel.int/SGPonplasticwaste/tabid/8402/Default.aspx



Target Group C

Enhancing knowledge and capacity for informed decision making

BASEL | ROTTERDAM | STOCKHOLM CONVENTIONS

UN environment programme | Global framework on chemicals

Target group C

This group focuses on building technical expertise, strengthening research capabilities, and increasing access to data on chemicals to inform biodiversity conservation efforts.

The Basel, Rotterdam and Stockholm Conventions and Global Framework on Chemicals foster international cooperation in knowledge-sharing, technology transfer, and capacity-building on chemicals and waste management. Their initiatives provide crucial tools for data gathering and scientific collaboration that allow countries, especially those with limited resources, to develop informed conservation strategies.

Lack of environmental monitoring in low-income, high-biodiversity regions makes it difficult to track pollution threats

- Sound chemicals management directly supports knowledge-building efforts essential for conservation (Target 20).
- Without data on chemical pollution, especially in biodiversity-rich regions, conservation strategies risk being ineffective (Target 21).

Open access to chemical hazard information empowers communities and decision-makers

- Open access to chemical hazard information empowers communities and decision-makers
- Pollution from chemicals is a growing threat to biodiversity, and understanding its impacts requires collaboration across sectors (Target 14).
- Cross-sectoral knowledge on chemicals and waste management supports comprehensive decision-making in biodiversity planning (Target 14).
- It allows them to engage meaningfully in biodiversity-related governance, supporting inclusive conservation efforts (Target 21).

Uncoordinated expansion of urban, agricultural, and industrial development often result in the loss of ecosystems degradation driven by unsustainable use of land and sea

- These activities fragment habitats and introduce chemicals and waste-related pollutants that disrupt ecosystems (Target 1).
- By reducing the release and exposure to pollutants in sensitive areas, including populated and protected zones, sound chemical and waste management helps minimize contamination risks (Target 1).

Target 20 Strengthen capacity-building, technology transfer, and scientific and technical cooperation for biodiversity 31
Target 21 Ensure knowledge is available and accessible to guide biodiversity action 33
Target 1 Plan and manage all areas to reduce biodiversity loss 36
Target 14 Integrate biodiversity in decision-making at every level 37

This group focuses on building technical expertise, strengthening research capabilities, and increasing access to data on chemicals to inform biodiversity conservation efforts.

Target 20: strengthen capacity-building, technology transfer, scientific and technical cooperation for biodiversity

Target 20 aims to strengthen capacity-building and development, access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation, including through South-South, North-South and triangular cooperation, to meet the needs for effective implementation, particularly in developing countries, fostering joint technology development and joint scientific research programmes for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capacities, commensurate with the ambition of the goals and targets of the framework.

(i) Why is the sound management of chemicals and waste relevant for achieving target 20?

The impact of chemicals in the environment poses a growing threat to biodiversity, and failing to address this issue could seriously undermine conservation efforts (Sigmund et al., 2023). There is an urgent need to improve knowledge on the distribution of chemicals to better understand their role in biodiversity loss and develop targeted local management strategies. Currently, most environmental monitoring data comes from high-income countries, while low- and middle-income countries – often rich in biodiversity – lack the resources and data to assess chemical threats. These regions are especially vulnerable to biodiversity loss due to elevated contamination levels (Mueller et al., 2023).

Additionally, biodiversity research has traditionally focused on bio-ecological factors, such as habitat structure and climate change, with much less attention being directed to the effects of chemical pollutants. Tackling such a multifaceted issue requires interdisciplinary collaboration between ecologists, ecotoxicologists, and environmental chemists (Groh et al., 2022). Excitingly, recent advances in these fields now enable more comprehensive studies, offering deeper insights into how chemicals interact with ecosystems as well as innovative techniques to incorporate green chemistry and use of safer alternatives in nature-based solutions.

The BRS and GFC secretariats are actively supporting capacity-building efforts in developing and transitioning countries to help meet biodiversity goals. Through North-South and South-South cooperation, they offer tools and training activities to maximize both short- and long-term impacts[1].

(ii) Existing and ongoing efforts

- **Technical assistance under the BRS conventions**: Technical assistance is provided under the BRS conventions to strengthen the capacities of Parties, particularly developing country Parties and Parties with economies in transition, to implement the BRS conventions. The Basel and Stockholm conventions have established 23 Basel Convention regional and coordinating centres and Stockholm Convention regional and subregional centres for capacity building and the transfer of technology to provide technical assistance, capacity building and to promote the transfer of technology. These autonomous institutions operate under the authority of each Conference of the Parties, the decision-making organ of the Convention composed of all the countries Party to the Convention[2];
- **Global Framework on Chemicals collaborative approach to capacity development:** The GFC emphasizes the significance of international cooperation and coordination, as outlined in Resolution V/6[3]. This resolution underscores the need for collaborative global action to address the challenges of chemical management and pollution. The GFC facilitates technical cooperation through networks, partnerships, and mechanisms that focus on capacity-building and technology transfer, particularly for developing countries.

(iii) Potential opportunities for enhancing cooperation

- **Collaborative reporting for biodiversity protection:** Respective secretariats of biodiversity and chemicals and waste agreements could promote collaborative sharing of information relevant to each other's objectives. For example, under Article 13 of the Basel Convention, Parties are required to annually report their efforts on hazardous waste management, including disposal challenges and technology development for waste reduction. Sharing information on measures reported by Parties that minimize impacts of hazardous waste on biodiversity with the CBD Secretariat could enhance synergies between waste management and biodiversity loss. This collaborative exchange could also flow in the other direction, with the CBD sharing relevant data on how biodiversity is affected by hazardous waste, promoting integrated strategies for both waste reduction and biodiversity protection;
- **Strengthening partnerships for integrated environmental protection:** Given that Secretariats of BRS and GFC dedicate resources to capacity building, designing specific activities on overlapping interests can significantly increase their reach. For instance, guided by Article 12, the Stockholm Convention strengthens capacity-building and technical assistance through initiatives such as workshops on managing POPs, in collaboration with organizations like UNEP, UNIDO, and the World Bank. Expanding these partnerships to include biodiversity-focused institutions, such as the CBD Secretariat, would enhance the ability to assess the impact of POPs on biodiversity and support more integrated environmental protection strategies.

Guiding questions for GBF national target setting:

i. What technologies and tools are currently being used or are available to monitor and mitigate the impacts of chemicals and waste on biodiversity?

ii. Is there interdisciplinary collaboration among ecologists, ecotoxicologists, and environmental chemists towards biodiversity action?

iii. Is innovation in chemical safety and waste management being incorporated into capacity-building efforts for biodiversity protection?

iv. Is green sustainable chemistry part of the student curriculum and trainings?

v. Are there examples of nature-based solutions being applied to promote toxic free alternative ingredients, products and processes?

1 BRS conventions capacity development programme: https://www.brsmeas.org/tabid/4899/language/es-CO/Default.aspx
2 Basel and Stockholm conventions regional centers: https://www.brsmeas.org//tabid/2636

3 https://www.chemicalsframework.org/page/resolution-v6-international-cooperation-and-coordination

This group focuses on building technical expertise, strengthening research capabilities, and increasing access to data on chemicals to inform biodiversity conservation efforts.

Target 21: ensure that knowledge is available and accessible to guide biodiversity action

Target 21 aims to ensure that the best available data, information and knowledge, are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent, in accordance with national legislation.

(i) Why is the sound management of chemicals and waste relevant for achieving target 21?

Increasing access to information on the impacts of chemical pollutants on biodiversity is essential for creating a more informed public and decision-makers. It is critical not only to gather scientific data on the links between pollution and biodiversity loss but also to ensure that this information reaches both the public and decision-makers in a clear and understandable format. It is only through science-policy dialogues between experts in ecotoxicology, ecology, environmental chemistry, local communities, and government representatives that solid, grounded policies for effective biodiversity conservation can be created.

(ii) Existing and ongoing efforts

- **Harmonizing indicators between chemical management and biodiversity frameworks**: The GFC prioritizes developing measurable indicators to track progress in managing chemicals and waste. An open-ended ad hoc group on measurability and indicators was established in 2023 by resolution V/9 and is currently working to create a set of indicators and refine the GFC's measurability structure. Similarly, the Global Biodiversity Framework (GBF) is working on developing indicators to monitor biodiversity. This shared focus offers a strong opportunity for collaboration between the two frameworks;
- **Prior informed consent (PIC) procedure and information exchange under the Rotterdam Convention**: The Rotterdam Convention provides for a range of mechanisms by which Parties share information that may also guide biodiversity action. Through the biannual PIC Circular, Parties are made aware of national bans or severe restrictions of hazardous chemicals by other Parties and information on incidents resulting from the use of hazardous pesticide formulations causing human poisoning or environmental damage. Parties receive a decision guidance document (DGD) for each chemical listed in Annex III of the Convention. The information contained in a DGD provides a basis for making an informed decision regarding future import of these chemicals. The Convention helps Parties to better manage chemicals and to avoid the import of certain unwanted chemicals by promoting a shared responsibility among importing and exporting Parties. Importing Parties have a responsibility to make informed decisions regarding future import in a timely manner, while exporting Parties have a responsibility to ensure that exports do not occur contrary to the import decisions of Parties. An export notification informs an importing Party that it is going to receive a chemical that has been banned or severely restricted in the exporting Party. Export notifications also provide information on the chemical that may be useful to importing Parties for risk management. Finally, Information provided on labels and the safety data sheet that are required to accompany the export of certain hazardous chemicals helps importing Parties to minimize risks to workers, others and the environment;
- **Generating and sharing knowledge to guide biodiversity action through the Stockholm Convention**: Pursuant to Article 11, Parties to the Stockholm Convention are required to promote research, development, and monitoring on POPs and their impacts on human health and the environment, including biodiversity. The Convention encourages Parties to cooperate in developing and strengthening national and international scientific and technical capacity, and to exchange information on the reduction or elimination of POPs releases. Ongoing efforts under the Convention include global monitoring of POPs in air, water, biota, and humans, as well as regional and global assessments that feed into policy-relevant knowledge products. Through mechanisms such as the Global Monitoring Plan and national reporting, the Convention contributes to building transparent, science-based decision-making and knowledge sharing.
- **GHS as a tool for environmental safety**: The GFC promotes the implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) by all governments, standardizing the classification and communication of chemical hazards and making vital environmental risk information easily accessible to workers, consumers, and decision-makers. This helps ensure clearer communication on chemical risks, enhancing safety and supporting informed actions that reduce pollution and protect biodiversity. Additionally, under Strategic Objective B, the GFC is working to ensure that comprehensive data on chemical properties is generated and made accessible through open-access platforms by 2035, enabling stakeholders to assess the impacts of chemicals on ecosystems and further improve biodiversity conservation strategies;
- **Roadmap for Science to Action**: The BRS conventions have recognized the importance of bridging the science-policy gap to enhance the implementation of sound chemicals and waste management and adopted through decisions BC-12/22, RC-7/12, and SC-7/30 a roadmap to promote science-based decision-making at the regional and national levels4. This roadmap focuses on improving access to scientific and technical information, particularly in developing countries, to guide policies under the conventions. It emphasizes collaboration with organizations such as UNEP and other scientific bodies to facilitate knowledge exchange, enhance scientific understanding, and support informed biodiversity action;
- **Science-policy panel on chemicals, waste and pollution prevention**: Established by UNEA decision 5/8 the panel aims to provide policymakers with robust, independent scientific information on chemicals, waste and pollution prevention and is expected to work strategically with the BRS and the GFC. The resolution also requested an Ad-hoc open ended working group to prepare proposals for the science-policy panel. Key advances have already been achieved, and the work actively continues5.

4 BRS roadmap from Science to Action: https://www.brsmeas.org/tabid/4749/language/en-US/Default.aspx
5 More on the OEWG on a science-policy panel on chemicals, waste and pollution prevention activities: https://www.unep.org/oewg-spp-chemicals-waste-pollution



This group focuses on building technical expertise, strengthening research capabilities, and increasing access to data on chemicals to inform biodiversity conservation efforts.

(iii) Potential opportunities for enhancing cooperation

- **Promoting cross-sectoral synergies in monitoring and reporting**: Collaboration between the chemical and biodiversity sectors to develop joint monitoring initiatives that assess the impact of chemicals on ecosystems and community health. For example, integrating the Stockholm Convention's Global Monitoring Plan (GMP) with biodiversity indicators from the GBF could create a more holistic view of how chemicals affect species conservation and ecosystem services, driving data-driven policy adjustments and targeted interventions;
- **Engagement of the international science-policy panels on assessing the interlinkages between pollution and biodiversity loss**: Existing scientific panels such as IPBES and the future science-policy panel on chemicals, waste and pollution prevention could include this topic on their working programmes.

Guiding questions for GBF national target setting:

i. How is data on chemical pollutants and their impacts on biodiversity being made accessible to decision-makers and the public?

ii. What mechanisms are in place to facilitate science-policy dialogues that integrate knowledge from ecotoxicology, ecology, and local communities to guide biodiversity action?

iii. How can the roadmap for Science to Action under the BRS conventions be used to enhance knowledge exchange and technical understanding of chemical pollution in addressing biodiversity loss?

iv. What opportunities exist to harmonize indicators between chemical management frameworks and biodiversity frameworks to create a unified approach to monitoring ecosystem health?

v. Are there open-access information platforms on chemical properties and their effects on ecosystems being used to guide conservation strategies and protect biodiversity?

vi. What strategies are in place to ensure that scientific research on chemicals and their impact on biodiversity reaches decision-makers in a clear and actionable format?

Target 1: plan and manage all areas to reduce biodiversity loss

Target 1 aims to ensure that all areas are under participatory, integrated, and biodiversity inclusive spatial planning and/or effective management processes addressing land and sea use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.

(i) Why is the sound management of chemicals and waste relevant for achieving target 1?

The loss of biodiversity and ecosystems degradation are largely driven by unsustainable land and sea use changes, often resulting from the uncoordinated expansion of urban, agricultural, and industrial development. These activities fragment habitats and introduce chemicals and waste-related pollutants that disrupt ecosystems. Integrated spatial planning, which considers the cumulative impacts of various land and sea uses, is a key tool in addressing this challenge. The chemical and waste management agreements also directly benefit from participatory and inclusive spatial planning processes. Differentiating rural, industrial, and urban zones through participatory spatial planning facilitates the implementation and monitoring of obligations, helping to protect both the environment and human health. By reducing the release and exposure to pollutants in sensitive areas, including populated and protected zones, sound chemical and waste management helps minimize contamination risks, supporting ecosystem resilience and reducing biodiversity loss.

(ii) Existing and ongoing international efforts

- **Strengthening legal frameworks and cross-sectoral coordination through the GFC**: The Global Framework on Chemicals (GFC) supports governments in developing legal instruments that prevent or minimize the release of harmful substances in high-biodiversity areas by strengthening oversight mechanisms, including those related to land and sea use changes;
- **Assessing chemicals and waste management impact considering spatial planning**: The Basel Convention's technical guidelines on hazardous waste disposal consider the importance of integrating ecosystem considerations when selecting sites for waste treatment and disposal facilities. For example, guidelines for specially engineered landfills (D5) (UNEP, 2022c) and incineration operations (D10 and R1) (UNEP, 2022b) highlight how waste sites may disrupting or impact local ecosystems.

(iii) Potential opportunities for enhancing cooperation

- **Integration of strategic environmental assessment in spatial planning**: The GFC can enhance biodiversity protection by guiding governments to incorporate chemicals and waste management into urban zoning and land-use planning. By fostering capacity-building initiatives and sharing successful experiences, the GFC can promote the use of Strategic Environmental Assessments (SEA) or Environmental Impact Assessments (EIA) in these processes. This integration ensures that spatial planning minimizes ecosystem disruptions, reduces contamination risks, and supports land-use strategies that align with biodiversity conservation goals.

Guiding questions for GBF national target setting:

i. Does your country have regulations in place for Environmental Impact Assessments (EIA) and Strategic Environmental Assessments (SEA)?

ii. Are industrial, rural, and urban areas clearly defined in your country's spatial planning processes?

iii. How is the impact of chemicals and waste on ecosystems being assessed and managed when selecting sites for waste treatment and disposal facilities?

This group focuses on building technical expertise, strengthening research capabilities, and increasing access to data on chemicals to inform biodiversity conservation efforts.

Target 14: Integrate biodiversity in decision-making at every level

Target 14 aims to ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, fiscal and financial flows with the goals and targets of this framework.

(i) Why is the sound management of chemicals and waste relevant for achieving target 14?

Chemicals and waste management, and biodiversity loss are closely linked, as many of the root causes of biodiversity loss can be addressed through the sound management of chemicals and waste. Strategies like green chemistry, circular economy approached, and other sustainable practices offer potential solutions to key drivers of biodiversity loss, such as habitat destruction, land conversion, climate change, resource extraction, and waste (Kopnina et al., 2024). Therefore, effective decision-making at regional, national, and local levels must integrate these interlinkages to create cohesive, impactful policies.

Integrating technical information such as chemicals and waste management or biodiversity values and trade-offs into decision-making presents significant challenges. A considerable disconnect remains between information providers and users. Achieving real integration of such concepts requires not only a strong understanding of technical issues but also the political context that often constraints outcomes. Those aiming to influence government decision-making must understand how decisions are made, including bureaucratic processes and stakeholders' dynamics (UNEP, 2021). Biodiversity and chemicals share this challenge, and given their interconnected objectives, efforts to integrate key concepts into decision-making are more effective when approached cooperatively.

(ii) Existing and ongoing efforts

- **Integrating sound management chemical and waste management in policy frameworks**: Through their mandates and targets BRS and GFC agreements actively work to develop policies and regulations that minimize the impact of hazardous chemicals and pollution on biodiversity. The Secretariats promote the coordination of regulatory measures across sectors, promoting that chemical management is incorporated into environmental impact assessments, land-use planning, waste management strategies, and agricultural practices. For instance, GFC Target E1 specifically aims to mainstream the sound management of chemicals and waste into all relevant sectoral plans, budgets, and development programs by 2035.

(iii) Potential opportunities for enhancing cooperation

- **Integrating green budgeting into national accounting**: Green budgeting incorporates environmental considerations into national financial planning and decision-making processes, aligning fiscal policies with climate, biodiversity, and sustainability goals (OECD, 2024). By incorporating tools like green budgeting into national accounting systems, countries can systematically address the impacts of hazardous chemicals and biodiversity loss. Joint efforts to foster the integration of biodiversity and chemical management targets in financial decision-making would support shared global goals and allow for more streamlined and impactful environmental investments across sectors.

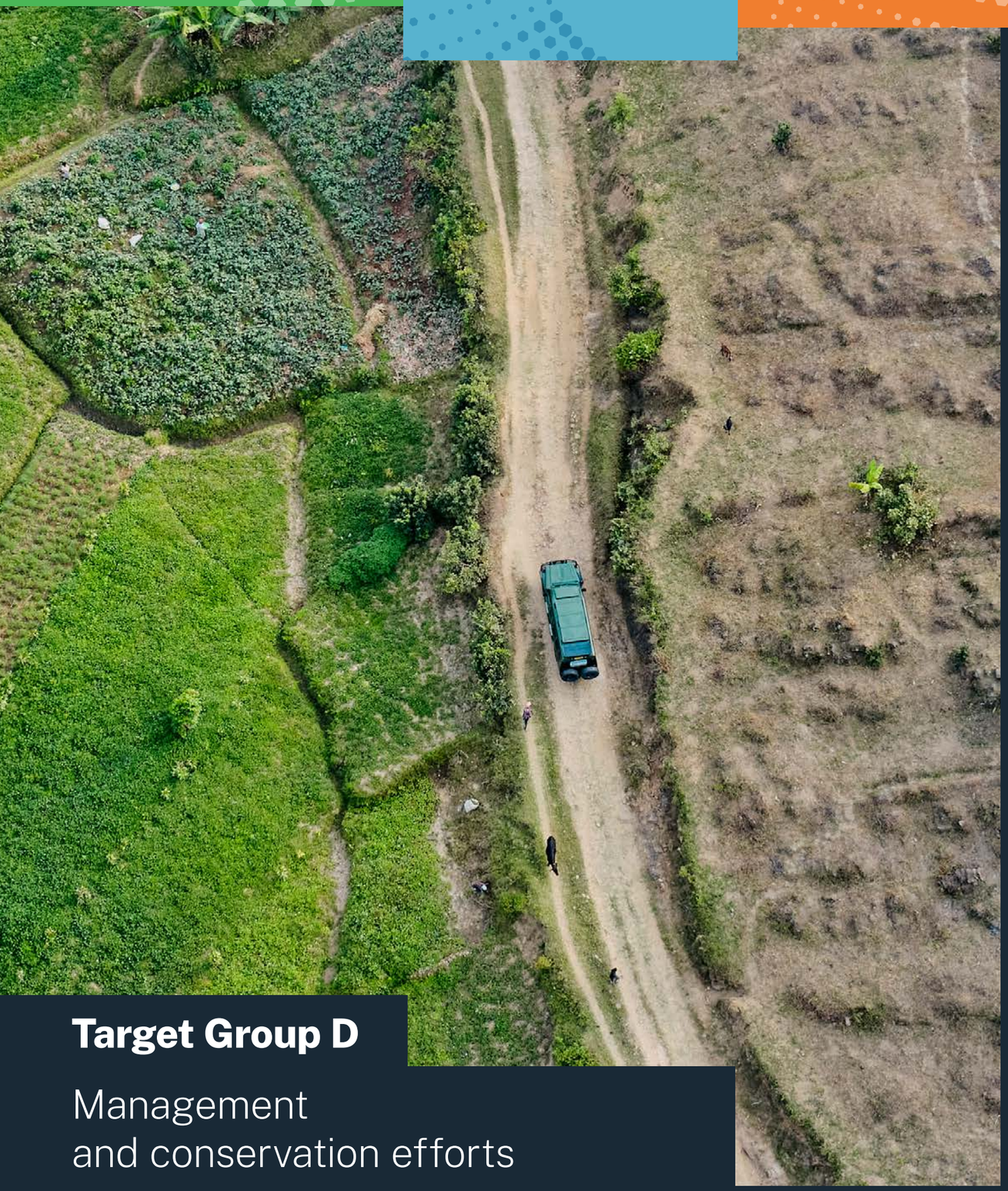
Guiding questions for GBF national target setting:

i. How is the sound management of chemicals and waste being integrated into national plans, strategies, or policies to protect biodiversity?

ii. What mechanisms are in place to ensure that biodiversity values and trade-offs are integrated into strategic planning?

iii. What opportunities exist to foster cooperation between the chemical and biodiversity sectors to develop integrated policies that address their shared objectives?

iv. How are financial and fiscal policies being adjusted to include considerations for chemical and waste management in alignment with biodiversity targets? (for example, green budgeting)



Target Group D

Management and conservation efforts

BASEL | ROTTERDAM | STOCKHOLM CONVENTIONS

UN environment programme | Global framework on chemicals

Target group D

This group focuses on protecting, restoring, and maintaining ecosystems by addressing pollution threats and enhancing ecosystem services.

The Basel, Rotterdam and Stockholm Conventions and the Global Framework on Chemicals provide essential guidance and capacity-building on managing pollutants that disrupt ecosystem services. By promoting safe waste disposal, remediation of contaminated sites, and clean production practices, these agreements support the restoration, conservation, and sustainable use of ecosystems.

Persistent organic pollutants and heavy metals disrupt key ecosystem services like water purification and pollination, which are essential for biodiversity:

- Targeted chemical restrictions help safeguard these functions (Target 11).

Many protected areas suffer from airborne and waterborne pollution that originates outside their boundaries:

- Sound chemical management and control measures are essential to preserve habitats and prevent chemical encroachment in conservation zones (Target 3).

In urban areas, pollution from waste impacts air and water quality:

- This affects urban green spaces and biodiversity directly (Target 12).
- Effective waste management improves urban biodiversity and well-being (Target 12).

Chemical contaminants in degraded ecosystems can hinder restoration efforts:

- Proactive pollution control supports the rehabilitation of degraded habitats (Target 2).

Target 11 Restore, maintain, and enhance nature's contributions to people 41
Target 3 Conserve 30% of land, waters, and seas 43
Target 12 Enhance green spaces and urban planning for human well-being and biodiversity 45
Target 2 Restore 30% of all degraded ecosystems 47



This group focuses on protecting, restoring, and maintaining ecosystems by addressing pollution threats and enhancing ecosystem services.

Target 11: restore, maintain and enhance nature's contributions to people

Target 11 aims to restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as regulation of air, water, and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature.

(i) Why is the sound management of chemicals and waste relevant for achieving target 11?

As pollution from chemicals and waste releases can affect key components of all dimensions of nature's contributions to people, virtually every effort towards the sound management of chemicals and waste directly supports Target 11. 99% of the global population breathes air that exceeds WHO pollution guidelines, with the worst impacts in low-income countries[1]. Acid rain and other industrial pollution sources degrade forests and wetlands, weakening their ability to prevent natural disasters like floods and landslides (Manisalidis et al., 2020). Anthropogenic use of chemicals has been linked to a 45% decline in insect populations over the last 40 years (Sánchez-Bayo & Wyckhuys, 2019). This threatens ecosystems and agriculture, as 75% of global crops depend on insect pollination, valued at nearly US$600 billion annually.

Due to increase in population, rapid industrialization, mismanaged agricultural practices, household sewage water, and sewage, landfills, medicines the groundwater is becoming contaminated by potentially toxic metals, pesticides, nitrate, fluoride, volatile organic compounds and pharmaceuticals by leaching process, resulting in the degradation and pollution of the environment. This adversely affects water bodies necessary for life, ultimately affecting human health and sustainable social development (Xu et al., 2022). Groundwater contamination causes a range of effects to animals and human beings. In developing countries, about 80% of diseases are waterborne diseases. Projections suggest that by the year 2100, as many as 5.5 billion people could face exposure to contaminated water sources due to increasing pollution levels[2].

(ii) Existing and ongoing efforts

- **Managing releases from intentional production and use of pollutants**: The Stockholm Convention aims to protect human health and the environment from persistent organic pollutants (POPs), including those arising from intentional production and use. While the Convention generally prohibits the production and use of listed chemicals, it allows for specific exemptions for certain applications when no viable alternatives are available or when continue use is considered critical. In such cases, Parties are required to implement measures that minimize both human exposure and environmental releases. These efforts help limit releases to the minimum necessary, thereby supporting the protection of biodiversity and ecosystem services;
- **Protecting water bodies from waste contamination**: The Basel Convention supports countries in controlling transboundary movements of hazardous wastes, thus helping to prevent water contamination from improper disposal. Specifically, through its Annex IV, the convention outlines the disposal operations under its scope including in section D6 the release into water bodies (except seas/oceans). The Secretariat also fosters capacity-building and technical assistance to enhance countries' abilities to mitigate the risks associated with waste disposal;
- **Driving production efficiency through sustainable chemistry**: Strategic objective D of the Global Framework on Chemicals (GFC) focuses on implementing safer alternatives and sustainable solutions across product value chains to protect human health and the environment. By 2030, companies will advance sustainable chemistry and resource efficiency, while by 2035, governments will enforce policies promoting best available techniques (BAT), green procurement, and circular economy approaches. These efforts directly contribute to restoring, maintaining, and enhancing nature's contributions to people, such as water purification and air quality regulation, by reducing chemical pollution and promoting eco-friendly innovations.

(iii) Potential opportunities for enhancing cooperation

- **Integrating technical expertise on ecosystem services**: Chemical and biodiversity international agreements possess technical working groups that can enrich and benefit from collaboration with other key sectors. For instance, the WHO's One Health initiative aims to sustainably balance and optimize the health of people, animas and ecosystems, recognizing that the health of humans, domestic and wild animals, plants, and the wider environment are closely linked and interdependent3. Moreover, the WHO´s Global Air Pollution and Health Technical Advisory Group, Scientific Advisory Group on Air Pollution and Health, and the SDG 11.6.2 Working Group offer promising opportunities to collaborate on air quality, chemical management, and biodiversity protection and craft unified approaches to address pollution and the restoration of ecosystem functions4.

Guiding questions for GBF national target setting:

i. What role do circular economy approaches play in reducing waste generation and enhancing the efficiency of resource use to support ecosystem services?
ii. How are the impacts of chemical pollution on pollinator populations being addressed to safeguard agricultural productivity and ecosystem health?
iii. What steps are being taken to prevent water contamination from hazardous waste disposal?

1 Air pollution, WHO. Retrieved from https://www.who.int/health-topics/air-pollution#tab=tab_1
2 https://www.nature.com/articles/d41586-023-02337-7
3 https://www.who.int/health-topics/one-health#tab=tab_1
4 https://www.who.int/groups/global-air-pollution-and-health---technical-advisory-group



This group focuses on protecting, restoring, and maintaining ecosystems by addressing pollution threats and enhancing ecosystem services.

Target 3: conserve 30% of land, waters and seas

Ensure and enable that by 2030 at least 30 percent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.

(i) Why is the sound management of chemicals and waste relevant for achieving target 3?

The establishment of protected areas and conserved habitats is a critical strategy for conserving biodiversity and restoring ecosystems. However, protected areas are typically focused on limiting human exploitation and preserving natural habitats. Chemical pollutants, including pesticides and industrial chemicals, are not confined to their source and often migrate, affecting ecosystems beyond their origin. While some efforts may include reductions in pesticide emissions for example by introducing buffer zones around protected areas, broader chemical pollution sources are frequently overlooked (Groh et al., 2022).

Moreover, concentrations of many chemicals build up in wildlife and increase as they move through food chains and therefore enter protected areas through migratory species, undermining conservation efforts. Without incorporating integrated chemicals and waste management, improvements achieved through this target constantly risk being compromised.

(ii) Existing and ongoing international efforts

- **Leveraging global chemical monitoring to safeguard biodiversity**: The Stockholm Convention's Global Monitoring Plan (GMP) supports Target 3 by tracking the long-range environmental transport (LRET) of Persistent Organic Pollutants (POPs) through air, water, and migratory species. POPs released in one region can travel vast distances, contaminating even remote and protected ecosystems far from their original source. This global monitoring programme5 provides critical data on POP concentrations in terrestrial, inland water, and marine environments – many of which are designated protected areas or areas of high conservation value.

(iii) Potential opportunities for enhancing cooperation

- **Chemical-Biodiversity synergies to monitor chemical pollution in protected areas**: Several international funds support chemical management projects that aim to eliminate, reduce, or mitigate the impacts of chemicals and waste through the reduction of pollutant releases with high environmental distribution potential. To enhance the effectiveness of these initiatives, the Secretariats overseeing these funds could actively promote the integration of baseline monitoring and continuous tracking of chemical levels within ecosystems in protected areas. By incorporating these monitoring schemes into both chemical and biodiversity-related projects, especially at regional levels, the efforts could foster stronger collaboration and achieve more comprehensive results for ecosystem conservation.

Guiding questions for GBF national target setting:

i. Are there environmental monitoring programs in place to monitor pollution and its effects on biodiversity?

ii. Are the areas under protection and conservancy protected from sources of pollutions? Have threats been identified and managed?

5 Stockholm Convention Global Monitoring Plan (GMP): https://www.pops.int/tabid/83/Default.aspx

This group focuses on protecting, restoring, and maintaining ecosystems by addressing pollution threats and enhancing ecosystem services.



Target 12: enhance green spaces and urban planning for human well-being and biodiversity

Target 12 aims to significantly increase the area and quality and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature and contributing to inclusive and sustainable urbanization and the provision of ecosystem functions and services.

(i) Why is the sound management of chemicals and waste relevant for achieving target 12?

There is broad consensus on the benefits of green spaces in urban areas for improving both human health and biodiversity. However, less attention is given to how pollution from chemicals and waste can undermine these benefits by directly affecting the health of ecosystems. For example, deposition of particulate matter from different sources on leaves can disrupt photosynthesis and reduce tree growth, weakening the trees' ability to provide ecosystem services such as air quality improvement and temperature regulation (Mandal et al., 2023).

By integrating effective waste and chemical management into urban planning, cities can maximize the benefits of green spaces for both nature and people, ensuring healthier urban ecosystems and improved quality of life.

(ii) Existing and ongoing international efforts

- **Guiding the integration of sound management of chemicals and waste into urban development**: The Strategic Approach to International Chemicals Management (SAICM) developed the Eco-innovation Manual–Building Materials Supplement (UNEP, 2023d) to guide the building materials sector in adopting eco-innovative practices, reduce environmental impacts and promoting healthier urban ecosystems. The GFC promotes the practical application of these eco-innovation strategies, aiming to enhance stakeholder capacity in implementing sustainable practices. These initiatives collectively support the integration of sound chemical and waste management into urban development, aligning with Target 12's objectives to improve human well-being and biodiversity through better urban planning and green spaces;
- **Supporting biodiversity-inclusive urban planning through chemicals management under the Stockholm Convention**: The Stockholm Convention addresses sources of chemical pollution that impact the quality and ecological function of urban green and blue spaces. POPs, such as those found in certain construction and demolition materials, can be released into the environment during urban development and renovation activities. The Convention promotes the phase-out and environmentally sound management of these hazardous substances, such as hexabromocyclododecane in insulation materials, helping to reduce contamination in soils and water bodies within and around cities.

(iii) Potential opportunities for enhancing cooperation

- **Integrating the Basel Convention's waste management guidelines into urban planning strategies**: Collaborative efforts between urban planners, environmental authorities, and waste management professionals can help green and blue spaces in cities be developed and maintained in a way that minimizes pollution and protects ecosystem functions. The Convention's technical guidelines on the environmentally sound management (ESM) of municipal solid waste and other relevant streams provide practical measures for waste reduction, segregation, safe disposal, and treatment – critical for preventing contamination in parks, waterways, and urban biodiversity corridors. Embedding these guidelines into urban planning strategies, can help reduce environmental pressures on green areas while promoting healthier and more resilient urban ecosystems.

Guiding questions for GBF national target setting:

i. What steps are being taken to ensure that waste in urban areas does not negatively impact nearby green and blue spaces?

ii. Are there strategies in place to engage communities in the maintenance and enhancement of urban green spaces while addressing pollution challenges?



This group focuses on protecting, restoring, and maintaining ecosystems by addressing pollution threats and enhancing ecosystem services.

Target 2: restore 30% of all degraded ecosystems

Target 2 aims to ensure that by 2030 at least 30 percent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

(i) Why is the sound management of chemicals and waste relevant for achieving target 2?

The state of degraded ecosystems presents a critical global challenge. Soil is estimated to be highly affected with over 5 million contaminated sites worldwide encompassing approximately 20 million hectares (Lee et al., 2024).

Similarly, coastal and marine waters are burdened with pollutants, including nutrients, plastics, and chemicals. With nearly 45% of global sub-basin areas identified as multi-pollutant hotspots, current models reveal that rivers are a key transport of chemicals to marine environments including approximately 45 kton. of microplastics and 490 kton. of macroplastics (Micella et al., 2024).

The Basel, Rotterdam and Stockholm conventions play a crucial role in this target by directly supporting remediation efforts and especially by preventing new sources of contamination. By implementing global restrictions and the use of best practices for chemicals and waste management, these efforts help reduce the introduction and reintroduction of harmful substances into ecosystems undergoing restoration. This preventive approach is key to maintaining the integrity of restored ecosystems, thus protecting and enhancing biodiversity.

(ii) Existing and ongoing international efforts

- **Identification and restoration of sites contaminated with POPs**: under Article 6 of the Stockholm Convention, Parties are required to develop appropriate strategies for identifying sites contaminated by chemicals listed in Annexes A, B, or C. If remediation of these sites is undertaken, it must be carried out in an environmentally sound manner. To assist Parties in this effort, a draft guidance on best available techniques and best environmental practices for managing sites contaminated with persistent organic pollutants (POPs) has been developed (UNEP, 2025). This guidance supports the identification, assessment, management, and remediation of POPs-contaminated sites;
- **Protecting marine ecosystems through the Partnership on Plastic Waste (PWP)**: The PWP, created within the framework of the Basel Convention is dedicated to improving and promoting the environmentally sound management of plastic waste, with a key focus on significantly reducing and eventually eliminating the discharge of plastic waste and microplastics into marine environments. By fostering collaboration among governments, industry, and civil society, the partnership aims to prevent plastic waste from entering the oceans. It also provides technical assistance and capacity-building to support developing countries in strengthening their waste management systems. This includes pilot projects, such as the Support for the Implementation of the Regional Action Plan on Marine Litter for the Northeast Pacific in Costa Rica and Panama[6];
- **Addressing pesticides and industrial chemicals under the Rotterdam Convention**: The Rotterdam Convention promotes shared responsibilities and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm. By contributing to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties, the Rotterdam Convention contributes to reducing pollution levels and thus protecting ecosystems. Annex III lists pesticides and industrial chemicals subject to the Prior Informed Consent (PIC) procedure, ensuring Parties are informed of risks and can make informed decisions on whether they wish to receive future shipments of those chemicals.

(iii) Potential opportunities for enhancing cooperation

- **Enhance the Final Regulatory Action notification form**: Under article 5 of the Rotterdam Convention, member countries are requested to notify regulatory measures that ban or severely restrict a chemical substance. The required notification form includes sections detailing whether the restriction is due to risks to human health, the work environment, or the broader environment. Strengthening national capacities in the development of chemicals environmental risk assessment considering affected areas and species for better informed decisions;
- **Promoting joint projects on marine litter and microplastics**: Collaboration among the BRS conventions, the GFC, and the CBD could strengthen cross-sectoral initiatives that combine pollution prevention with active ecosystem restoration. For example, coordinated efforts could help reduce upstream sources of microplastic pollution and monitor the recovery of affected habitats.

Guiding questions for GBF national target setting:

i. What are the sources or causes of land degradation? (This addition can help Parties identify possible chemicals and waste related pollutants that could still be affecting the area, thereby preventing efforts from achieving complete and effective restoration.)

ii. Does your country have an updated inventory of contaminated sites? (Identifying contaminated sites is crucial for planning and prioritizing restoration and remediation actions for ecosystems.)

iii. Are remediation actions being implemented at the identified contaminated sites?

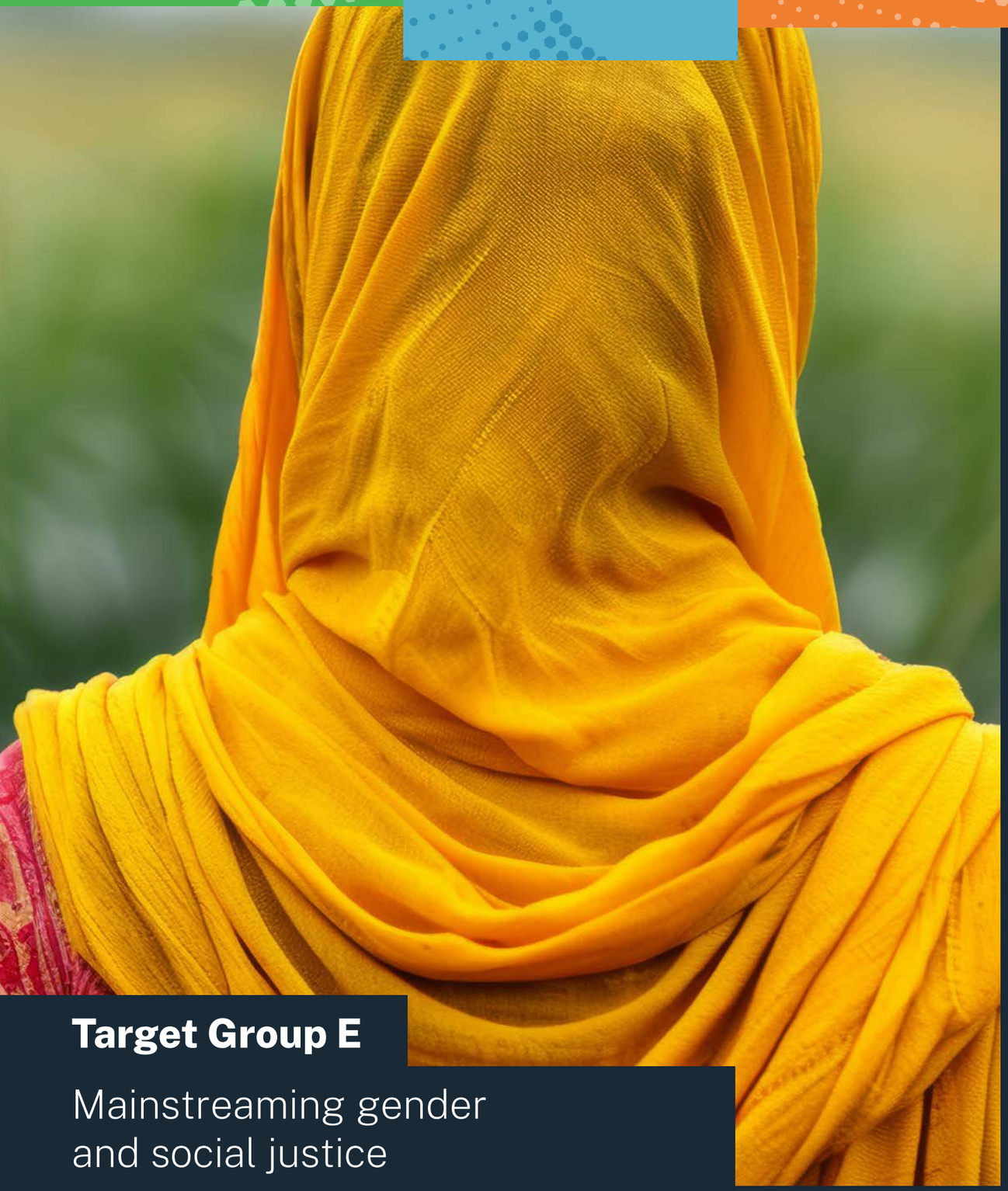
iv. Are there plans in place for the closure and cleanup of dumpsites?

v. What preventive measures are in place to avoid the reintroduction of harmful chemicals into restored ecosystems? (Encourages parties to focus on long-term sustainability by implementing strategies to prevent future contamination.)

vi. How does the presence of chemical pollutants affect biodiversity and ecosystem connectivity in degraded areas? (Encourages an understanding of how pollutants disrupt ecological relationships, helping to identify specific areas that need more focused intervention.)

vii. How is chemical and waste management currently integrated into existing restoration plans? (This question aims to help Parties assess whether they have adequately considered the impacts of chemical pollutants in their ecosystem restoration strategies.)

6 Plastic Waste Partnership (PWP): https://www.basel.int/tabid/8096/Default.aspx



Target Group E

Mainstreaming gender and social justice

BASEL | ROTTERDAM | STOCKHOLM CONVENTIONS

UN environment programme | Global framework on chemicals

Target group E

This group emphasizes equitable representation and inclusion in decision-making processes related to biodiversity, addressing the specific vulnerabilities of marginalized communities to pollution.

The Basel, Rotterdam and Stockholm Conventions and Global Framework on Chemicals uphold the "Right to Know" principle and work to ensure vulnerable communities have access to chemical safety information. By promoting gender equality through targeted initiatives and disaggregated data collection, they enable more inclusive and informed biodiversity governance.

Marginalized communities, especially Indigenous Peoples and women, often face high chemical exposure risks, affecting their health and rights.

- For example, contaminated water sources or nearby waste sites can heavily affect them (Target 22 and 23).

Access to information on chemical impacts empowers vulnerable communities

- It allows them to participate in biodiversity governance, advocating for their rights and health protections (Target 22).

Gender-responsive strategies in chemical management acknowledge women's unique roles in local waste management and pollution control

- This enhances equitable participation in conservation and (Target 23).

Target 22 Ensure participation in decision-making and access to justice and information related to biodiversity for all 51
Target 23 Ensure gender equality and a gender-responsive approach for biodiversity action 53



This group emphasizes equitable representation and inclusion in decision-making processes related to biodiversity, addressing the specific vulnerabilities of marginalized communities to pollution.

Target 22: ensure participation in decision-making and access to justice and information related to biodiversity for all

Target 22 aims to ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders.

(i) Why is the sound management of chemicals and waste relevant for achieving target 22?

The sound management of chemicals and waste directly impacts the health and environmental justice of vulnerable communities, including indigenous people, women, children, and other marginalized groups. These communities often experience disproportionate exposure to hazardous chemicals through contaminated water sources or soil, which can severely affect their health and traditional ways of living. Addressing these issues through robust chemicals and waste management frameworks helps to reduce these risks, thereby protecting the health of these communities and upholding their rights to a safe environment.

Moreover, the lack of access to information about hazardous chemicals limits these communities' ability to participate fully in decision-making processes regarding their lands and resources. Chemicals and waste management frameworks promote knowledge creation, data gathering, and transparency which are essential to achieve information access for all. Ensuring transparency, knowledge sharing, and data accessibility regarding chemicals and waste impacts, empowers these communities to make informed decisions, advocate for their rights, and engage meaningfully in biodiversity-related policies.

(ii) Existing and ongoing international efforts

- **Access to information in the GFC's core**: GFC's principles strongly support effective access to justice and the sharing of knowledge, including traditional and Indigenous knowledge systems, in a manner that respects free, prior, and informed consent. By promoting access to scientific data and environmental information, the GFC enables vulnerable communities to make informed decisions, advocate for their rights, and engage in biodiversity-related policymaking. Its focus on transparency helps ensure that all stakeholders have the opportunity to participate legitimately in decision-making processes;
- **BRS conventions' commitment to the "Right to Know" principle**: These conventions actively promote transparency in chemicals and waste management by providing tools like the Basel Convention's online reporting database, the Rotterdam Convention's Prior Informed Consent (PIC) procedure, and the Stockholm Convention's National Implementation Plans, which collectively facilitate public access to crucial information. The Public Awareness and Outreach (PAO) team amplifies these efforts by managing websites, social media platforms, and creating educational campaigns, publications, and media kits that inform and engage the public.

(iii) Potential opportunities for enhancing cooperation

- **Collaborative public awareness campaigns**: Joint communication efforts that leverage the outreach capabilities of the BRS conventions' Public Awareness and Outreach (PAO) team and the GBC efforts. By coordinating international campaigns, social media efforts, and educational materials, these initiatives could raise awareness about the links between chemicals, waste management, and biodiversity loss, emphasizing the importance of inclusive decision-making and community rights;
- **Enhancing legal and policy frameworks for access to justice**: Strengthen national and international legal frameworks that protect vulnerable communities from hazardous chemicals and waste. The BRS conventions and GFC could provide technical expertise to support the participation of Indigenous Peoples and local communities in biodiversity-related decisions, where chemicals and waste impacts are key, ensuring these groups have legal standing to influence policies affecting their lands and resources;
- **Strengthening stakeholders' knowledge on environmental consultation**: Developing a joint course on best practices for environmental consultation processes. This course would focus on equipping all stakeholders – including Indigenous Peoples, local communities, policymakers, and private sector actors – with the knowledge and skills necessary to engage effectively in decision-making about chemicals, waste, and biodiversity loss.

Guiding questions for GBF national target setting:

i. What steps are being taken to ensure that traditional knowledge from Indigenous Peoples and local communities about chemical impacts on ecosystems is respected and integrated into biodiversity management with their free, prior, and informed consent?

ii. What mechanisms are in place to ensure that Indigenous Peoples and local communities have access to information about the risks associated with hazardous chemicals in their lands and resources?

iii. How are principles of free, prior, and informed consent being applied when in decisions related to chemicals and chemical related industrial development?

iv. What opportunities exist to collaborate on public awareness campaigns that connect chemicals, waste management, and biodiversity loss to community rights and health?

v. What role do digital tools and online platforms play in improving access to information and participation for communities affected by chemical and waste pollution?



Target group E

This group emphasizes equitable representation and inclusion in decision-making processes related to biodiversity, addressing the specific vulnerabilities of marginalized communities to pollution.

Target 23: Ensure gender equality and a gender-responsive approach for biodiversity action

Target 23 aims to ensure gender equality in the implementation of the Global Biodiversity Framework, through a gender-responsive approach that respects the rights of women and girls, particularly with regard to equal access and participation in decision-making processes addressing biodiversity loss.

(i) Why is the sound management of chemicals and waste relevant for achieving target 23?

Gender inequalities in chemicals and waste management significantly impact women's health, decision-making power, and economic opportunities. Women face disproportionate exposure to hazardous chemicals throughout their lives, for example during electronics production, while handling household waste or agrochemical products. This exposure often leads to severe health issues (IPEN, 2020). Despite their active involvement in local waste management and pollution prevention, women are often excluded from decision-making processes at higher levels. Men typically have more access to institutions that influence municipal infrastructure and policies, while community consultations often fail to consider women's specific needs and preferences.

Women possess valuable knowledge and expertise that can drive more effective and fairer chemical and waste management operations. Recognizing the critical role women play in achieving a pollution-free environment is key to advancing sustainable waste management practices. Empowering women as agents of change enables more inclusive, effective environmental governance, ultimately strengthening biodiversity conservation efforts.

(ii) Existing and ongoing international efforts

- **BRS Gender Action Plan**: The BRS conventions promote gender equality in chemicals and waste management through their Gender Action Plan (GAP)1. This includes collecting gender-disaggregated data to guide policies, empowering women with training for leadership roles, and ensuring their active participation in decision-making. Partnerships with initiatives like the International Gender Champions and the Global Environment Facility amplify these efforts, fostering inclusive strategies across the sector;
- **Women as agents of change in addressing chemicals and waste issues**: The GFC's Target B5 focuses on developing educational, training, and public awareness programs by 2030 that highlight chemical safety, sustainability, and safer alternatives, ensuring these initiatives consider a gender-responsive perspective. Additionally, Target B7 calls for the generation of comprehensive monitoring and surveillance data on chemical exposures, disaggregated by factors like sex, age, and other demographics. These initiatives aim to empower women with the knowledge and tools needed to take on leadership roles in chemicals and waste management, enhancing their capacity to influence policies and drive more inclusive, sustainable practices;
- **Technical documents aimed at supporting gender efforts in specific spheres of chemicals management**: For example, the guidance Incorporating gender dimensions into national strategy setting in chemicals management2 was jointly developed to support gender mainstreaming in the development of artisanal and small-scale gold mining National Action Plans (NAPs) in line with Annex C of the Minamata Convention on Mercury, as well as for the development of National Implementation Plans (NIPs) for the management of persistent organic pollutants in line with the Stockholm Convention.

(iii) Potential opportunities for enhancing cooperation

- **Aligning gender-responsive policies across biodiversity and chemicals frameworks**: Given that all secretariats invest efforts towards gender equality, consciously working to align them can enhance inclusive decision-making and address gender-specific risks. A joint initiative could be established to develop guidance on incorporating gender dimensions into national biodiversity and chemicals management strategies, drawing from the BRS Gender Action Plan and the gender-responsive approaches promoted under the GBF.

Guiding questions for GBF national target setting:

i. Are chemicals and waste management issues integrated into your country's gender strategy?

ii. What steps are being taken to ensure equal participation of women and girls in decision-making processes related to chemicals and waste management, and biodiversity loss?

iii. What training and capacity-building initiatives are in place to empower women as leaders in chemicals and waste management and biodiversity action?

iv. How are traditional knowledge and expertise from women being leveraged to improve chemical safety and waste management at the community level?

v. What mechanisms exist to address the barriers that prevent women from accessing institutions that influence policies on chemicals, waste, and biodiversity?

1 https://www.brsmeas.org/Implementation/Gender/GenderHeroes/Introduction/tabid/4759/language/en-US/Default.aspx
2 https://wedocs.unep.org/bitstream/handle/20.500.11822/36587/GenderNAP.pdf?sequence=3&isAllowed=y



Target Group F

Integrated financial approach

BASEL | ROTTERDAM | STOCKHOLM CONVENTIONS

UN environment programme | Global framework on chemicals

Target group F

This group addresses the mobilization of financial resources and reform of harmful incentives to support biodiversity and encourage sustainable practices.

The Basel, Rotterdam and Stockholm Conventions and Global Framework on Chemicals support financial reform and mobilization efforts that align with biodiversity goals. By promoting the phase-out of harmful subsidies and encouraging investments in sustainable chemical technologies, they help redirect financial flows toward biodiversity-friendly practices.

Positioning pollution prevention bonds and biodiversity credits as vehicles for financing sustainable chemical management highlights their dual role in waste reduction and ecosystem restoration

- By formally integrating these instruments into biodiversity finance frameworks, countries can mobilize new funding streams (Target 19).

Recognizing private-sector investments in sustainable chemical practices as direct contributions to biodiversity goals can unlock a critical, yet often overlooked, source of financing.

- Integrating these efforts into biodiversity finance frameworks not only expands the resource base for conservation but also drives innovation and accountability across supply chains (Target 19).

Harmful subsidies encourage unsustainable practices in agriculture and industry, resulting in increased chemical pollution that degrades biodiversity.

- Redirecting these funds can enable cleaner production and responsible waste management (Target 18).

Target 18 Reduce harmful incentives by at least $500 billion per year and scale up positive incentives for biodiversity 57

Target 19 Mobilize $200 billion per year for biodiversity from all sources, including $30 billion through international finance 59



This group addresses the mobilization of financial resources and reform of harmful incentives to support biodiversity and encourage sustainable practices.

Target 18: reduce harmful incentives by at least $500 billion per year, and scale up positive incentives for biodiversity

Target 18 aims to identify by 2025, and eliminate, phase out or reform incentives, including subsidies, harmful for biodiversity, in a proportionate, just, fair, effective and equitable way, while substantially and progressively reducing them by at least 500 billion United States dollars per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.

(i) Why is the sound management of chemicals and waste relevant for achieving target 18?

Subsidies that harm biodiversity and the environment cost the world an estimated $1.8 trillion annually, with significant funds directed towards fossil fuels, agriculture, and other chemical-intensive sectors. This financial support often encourages practices that contribute to chemical pollution, soil degradation and, consequently, biodiversity loss.

Phasing out harmful incentives in favour of positive ones can help low- and middle-income countries overcome financial barriers to adopting modern, sustainable chemical technologies. In many of these regions, the cost of upgrading to state-of-the-art production processes in chemical and mining industries is often prohibitive, limiting their ability to reduce environmental impact and adopt greener alternatives (Groh et al., 2023). Redirecting funds from biodiversity-damaging subsidies towards financial incentives for cleaner technologies and practices could catalyse this transition, supporting both economic development and biodiversity conservation goals. By transforming these financial flows, governments can redirect funding to initiatives that support biodiversity conservation and promote sustainable land and resource management practices.

(ii) Existing and ongoing international efforts

- **Leveraging private sector engagement**: One of the GFC strategic objectives includes fostering collaboration and encouraging financial investment in safer, more sustainable chemical practices, including clean technologies and resource efficiency. By promoting integrated approaches to financing that include mainstreaming, private-sector involvement, and leveraging external funds, the GFC helps mobilize resources to phase out harmful incentives and scale up financial support for green technologies and practices. Specifically, its Target D2 aims to implement policies that encourage the use of best available techniques (BAT), green procurement, and circular economy approaches, driving the shift towards more sustainable production processes.

(iii) Potential opportunities for enhancing cooperation

- **Promoting sustainable procurement practices**: Encourage governments and large corporations to adopt green procurement policies that prioritize products and services with minimal environmental impact, setting clear standards for clean suppliers and the integration of green chemistry principles. Governments and big companies can accelerate the market transition toward sustainable products, reducing reliance on harmful chemicals and driving innovation in the development of eco-friendly materials and technologies. This approach also fosters a competitive advantage for companies that invest in clean production methods and supporting a greener supply chains.

Guiding questions for GBF national target setting:

i. How are subsidies and incentives in chemical-intensive sectors being reviewed to identify their impact on biodiversity and environmental health?

ii. What steps are being taken to phase out or reform harmful incentives that encourage the use of hazardous chemicals in agriculture, industry, and other sectors?

iii. How can positive financial incentives be scaled up to support the adoption of cleaner technologies and sustainable chemical practices?

iv. What role does the private sector play in investing in safer, more sustainable chemical practices to reduce biodiversity loss?

This group addresses the mobilization of financial resources and reform of harmful incentives to support biodiversity and encourage sustainable practices.



Target 19: mobilize $200 billion per year for biodiversity from all sources, including $30 billion through international finance

Substantially and progressively increase the level of financial resources from all sources, in an effective, timely and easily accessible manner, including domestic, international, public and private resources, in accordance with Article 20 of the Convention, to implement national biodiversity strategies and action plans, by 2030 mobilizing at least 200 billion United States dollars per year.

(i) Why is the sound management of chemicals and waste relevant for achieving target 19?

Mismanagement of chemicals and waste can lead to significant economic losses, with unmanaged pollution potentially reducing global GDP by $2,7 trillion annually by 2030 (Cuming & Bromley, 2023). Sound chemicals and waste management practices not only prevent these losses but also enhance the effectiveness of financial resources allocated towards biodiversity conservation. Promoting sustainable and clean practices in this sector can therefore directly contribute to the target of $200 billion per year mobilized for biodiversity.

Moreover, pollution prevention has become a significant focus in biodiversity finance, with 74% of biodiversity bond issuances from 2015 to 2022 targeting pollution control measures. These financial instruments, like green bonds and biodiversity credits, have emerged as key tools to leverage private sector investments in sustainable initiatives that align with biodiversity goals (missing bibliography). Understanding that funds directed towards pollution prevention and mitigation are essentially funds directed towards safeguarding biodiversity can help align financial flows with global conservation targets, maximizing their impact and ensuring sustainable use of natural resources.

(ii) Existing and ongoing efforts

- **Funding projects towards biodiversity protection**: The Basel, Rotterdam, and Stockholm (BRS) conventions and the Global Framework on Chemicals (GFC) actively fund projects aimed at mitigating the impacts of chemicals and waste, which play a crucial role in protecting biodiversity. For example, the Global Framework on Chemicals Fund supports projects that promote sustainable chemical management practices. This includes investments in pollution control technologies and initiatives that reduce the use of hazardous substances in industrial processes, thereby protecting ecosystems from chemical contamination. Similarly, the Basel Convention's technical assistance projects focus on the minimization, reduction and ESM of plastic waste, which continues to pose a significant threat to marine and terrestrial ecosystems. By funding these initiatives, both the BRS and GFC frameworks contribute to the broader goals of biodiversity conservation;
- **The integrated approach to financing the sound management of chemicals and waste**: Established by UNEA under Resolution 1/5 as a cornerstone of ongoing international efforts to secure sustainable funding for chemical safety, this approach is built on three mutually reinforcing pillars: mainstreaming chemicals management into national policies, promoting industry involvement through clear legislative frameworks that share responsibilities between the public and private sectors, and ensuring dedicated external financing, such as the Special Programme. Together, these pillars aim to embed sound chemicals management into development agendas and mobilize long-term financial resources to reduce chemical pollution and its impact on biodiversity.

(iii) Potential opportunities for enhancing cooperation

- **Accounting for private-sector investments in chemical pollution control**: A significant opportunity for additional synergies in biodiversity finance lies in leveraging sustainable supply-chain investments. Identifying, tracking, monitoring, and accounting for these funds could represent a substantial contribution of private-sector biodiversity finance. By systematically including investments that focus on treating industrial effluents or reducing hazardous chemical releases, these efforts can be recognized as direct contributions toward biodiversity protection. This approach would not only increase transparency in financial flows but also ensure that pollution control measures are formally recognized as vital components of biodiversity finance, ensuring that private-sector efforts in chemical management are fully integrated into broader environmental strategies.

Guiding questions for GBF national target setting:

i. What role do innovative financial mechanisms, such as payments for ecosystem services and green bonds, play in driving investments toward pollution control and addressing biodiversity loss in your country?

ii. What partnerships are being formed to leverage public and private investments in sustainable chemical practices that reduce biodiversity loss?

iii. Can the private sector's investments in sustainable chemical management identified and tracked?

IV. Conclusion and next steps

This report has highlighted the contributions of international chemicals and waste frameworks and agreements to the GBF. The analysis presented in this document successfully demonstrates that the link between the chemicals and waste management and biodiversity loss is direct, tangible and extensive. Chemicals and waste related impacts permeate all aspects of biodiversity loss, making chemicals and waste environmentally sound management a fundamental pillar for achieving the GBF's goals and targets.

Throughout the report, key interlinkages between specific GBF targets and the BRS conventions, the GFC, and other relevant MEAs are brought to light. In order to facilitate clear communication and awareness-raising, the report emphasizes those targets with the most apparent evident linkages with the objectives and goals of chemicals and waste agreements and frameworks – such as those addressing pollution, species conservation, sustainable production, and capacity-building. Nevertheless, the findings clearly indicate that chemicals and waste agreements and frameworks have relevance across the entire GBF. Even for the targets not discussed in detail in the report, there are evident contributions. For example, Target 5 on the sustainable use, harvesting, and trade of wild species can be linked to the MEA's efforts in strengthening customs capacities to control chemicals and waste trade and illegal traffic; Target 9 on managing wild species sustainably is connected to measures preventing pollution in key habitats; Target 13 on benefit-sharing from genetic resources is influenced by regulatory frameworks ensuring access to safe and non-contaminated genetic material; and Target 17 on biosafety aligns with efforts under chemicals and waste agreements to prevent the risks posed by hazardous substances in biotechnology.

Looking ahead, this report represents one more step in the ongoing efforts to build stronger synergies between biodiversity loss and chemicals and waste management. Progress has been made in translating these linkages into concrete and pragmatic entry points, opening the door for visible and measurable results. However, much work remains. Strengthening national implementation is a priority, for example by supporting countries in integrating chemicals and waste considerations into their National Cooperation Frameworks and fostering cross-sectoral collaboration in the implementation of GBF strategies.

Continued engagement with Parties, scientific bodies, and financial mechanisms and all other key stakeholders will be essential to operationalizing these synergies. By maintaining a coordinated approach, the BRS conventions, GFC, and other relevant MEAs and international frameworks can further enhance their collective contributions to support Parties in ensuring that the chemicals and waste environmentally sound management becomes fully embedded in efforts to reduce and/or reverse biodiversity loss to allow for the recovery of all ecosystems.

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