Strengthening coordination and collaboration between biodiversity and chemicals and waste clusters

Second Draft, 11 August 2021

This document is a draft of a report being prepared by UNEP-WCMC under contract to the Ministry of Environment of Finland as part of a project supported by the Nordic Council of Ministers. The report will amongst other things inform discussion during an expert workshop to be convened by the UNEP in September 2021, and all invited participants are encouraged to read it, paying particular attention to the section on "options for action".

This draft is being circulated for comment by relevant MEA secretariats and the SAICM Secretariat, as well as a number of independent experts, and to all others invited by the UNEP Law Division to participate in the expert workshop. In this document you will find the draft text of the report, but not the annexes. These will be sent to you separately in early September.

We are aware that more work needs to be done on the draft report, and further examples of work already being done would be helpful in particular. We are also aware that the "options for action" and "next steps" require further thought and work. However, these sections will benefit from discussion in the expert workshop, and we are awaiting that input.

While we recognise that everyone contacted already has a very full agenda, we would appreciate any assistance that you are able to provide us including the following:

(a) provide any feedback, positive or negative, on the document contents

(b) provide specific comment where you wish to do so

(c) identify any key sources of information that you believe we might have missed

(d) identify any further examples of good practice you believe might be useful to include

(e) carefully consider the options for action and how these could be improved

Any feedback should be sent to jerry.harrison@unep-wcmc.org. We would welcome feedback at any time and in any format. If you want your feedback to be considered in advance of the expert workshop it would be useful to have it by Monday 20 September. If you want your feedback and comments to be taken into account in the final report, we will need to receive it by **Monday 4 October** at the latest.

Contents

Executive summary

The text of the executive summary will be based on the body of the document and will focus on presenting the key findings in an accessible manner. The intention is that the executive summary would provide material in a form already useful for 'feeding' the upcoming dialogue and supporting follow up. In this regard it will not be a complete summary of the work done. To be drafted following completion of the body of the report.

List of Acronyms and Abbreviations

BLG	Liaison Group of Biodiversity-related Conventions
BRS	Basel, Rotterdam and Stockholm (Conventions)
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COP	Conference of the Parties
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
HFCs	Hydrofluorocarbons
HHP	Highly Hazardous Pesticide
HLPF	High-level Political Forum on Sustainable Development
ICCM	International Conference on Chemicals Management
IOMC	Inter-Organization Programme for the Sound Management of Chemicals
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated Pest Management
IPPC	International Plant Protection Convention
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IWC	International Whaling Commission
MEA	Multilateral Environmental Agreement
NIP	National Implementation Plan
POPs	Persistent Organic Pollutants
SAICM	Strategic Approach to International Chemicals Management
SDG	Sustainable Development Goal
WHC	Convention concerning the Protection of the World Cultural and Natural Heritage
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on the Law of the Sea
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
UNEP-WCMC	UNEP World Conservation Monitoring Centre
UNFCCC	United Nations Framework Convention on Climate Change
VNR	Voluntary National Reports
WHO	World Health Organization

Introduction

1. In recent years, efforts to reform the international environmental governance system have focused on improving policy coherence, coordination, and effectiveness. Exploring opportunities for enhancing synergies in implementing multilateral environmental agreements (MEAs) has been a key part of these endeavours. This has included consideration of what can be done at both national[1] and international[2] levels. However, efforts to date have mainly focused on cooperation and synergies among MEAs within the same thematic cluster, for example among those agreements addressing biodiversity or among those agreements addressing chemicals and waste.

2. This review is part of an effort to take this discussion to the next level, and to consider opportunities for strengthening coordination and collaboration in implementing MEAs and related processes across two different thematic clusters, the biodiversity cluster and the chemicals and waste cluster. The rationale for considering this is clear. Pollution is identified in both the fifth edition of the Global Biodiversity Outlook[3] and the IPBES Global Assessment Report on Biodiversity and Ecosystem Services[4] as one of the five main direct drivers of biodiversity loss. The expectation is that if those working on implementing biodiversity MEAs and processes and those working on implementing MEAs and processes relating to chemicals and waste were able to work together more efficiently and effectively, then implementation in both clusters will benefit.

3. The time is opportune, as intergovernmental processes are currently under way to develop a post-2020 global biodiversity framework and a new global framework for sound management of chemicals and waste beyond 2020. Both processes are described further below. Additionally, some of the conventions in the chemicals and waste cluster are actively considering interlinkages with biodiversity, and again this is addressed further below.[5,6] Meanwhile, the recently concluded UNEP-led report[7] on Making Peace with Nature concluded *inter alia* that "*given the interconnected nature of climate change, loss of biodiversity, land degradation, and air and water pollution, it is essential that these problems are tackled together. Response options that address multiple issues can mitigate multidimensional vulnerability, minimize trade-offs and maximise synergies*".

Scope and definitions

Consistent with the definition used by the Convention on Biological Diversity, **biodiversity** is taken to mean the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.[8]

Consistent with the wording of Agenda 21[9] this report is concerned with the environmentally sound management of toxic **chemicals** and hazardous **waste**. This is taken to include any chemicals or wastes introduced into the environment which have a negative impact on biodiversity, whether introduction is deliberate or unintentional.

[1] See for example nationalmeasynergies.files.wordpress.com/2015/06/sourcebook-web.pdf
[2] See for example www.brsmeas.org/Decisionmaking/Overview/SynergiesProcess
[3] www.cbd.int/gbo5
[4] www.ipbes.net/global-assessment
[5] wedocs.unep.org/bitstream/handle/20.500.11822/36088/BIKI.pdf
[6] The study report needs to be referenced once it is available, as well as reviewed to identify any further inputs/links for this study. We need to ensure they are aligned. As of mid-August, this report has still not been released.
[7] www.unep.org/resources/making-peace-nature
[8] www.cbd.int/convention/text/ (Article 2)
[9] sustainabledevelopment.un.org/content/documents/Agenda21.pdf

The following definitions are also used:[10]

Coordination: organization of the different elements of a complex body or activity so as to enable them to work together effectively and without duplication

Collaboration: working together to produce a discrete output or set of outputs

Cooperation: working together towards a common aim or objective

Synergies: linking processes in a way that increases the effects of the sum of the joint activities beyond the sum of individual activities, and thus making efforts more effective and efficient

Coherent implementation: implementing relevant agreements and processes in a consistent manner as a whole, rather than considering each independently

4. For the purposes of this review, the biodiversity cluster is taken to comprise the eight global conventions and agreements represented in the Liaison Group of Biodiversity-related Conventions (BLG). These are:

Convention concerning the Protection of the World Cultural and Natural Heritage (WHC)
Convention on Biological Diversity (CBD)
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
Convention on the Conservation of Migratory Species of Wild Animals (CMS)
Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar)
International Plant Protection Convention (IPPC)
International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
International Whaling Commission (IWC)

5. For the purposes of this review the chemicals and waste cluster is taken to include the following intergovernmental conventions and processes:

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
Stockholm Convention on Persistent Organic Pollutants
Minamata Convention on Mercury
Strategic Approach to International Chemicals Management (SAICM)

6. In addition, some of the discussion will also be relevant to four further global MEAs to some extent, as opportunities for strengthening coordination and collaboration may also relate to their interests, and/or the way they are implemented at the national level. These are the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification (UNCCD), the Montreal Protocol on Substances that Deplete the Ozone Layer, and the United Nations Convention on the Law of the Sea (UNCLOS). The issue is also relevant to the Regional Seas Conventions, and, where appropriate to the discussion, examples of regional agreements are considered, such as the Cartagena Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region and its Protocols. Annex 1 provides basic information on all MEAs referred to in the report.

7. The overall project, which is supported by the Nordic Council of Ministers, aims to enhance cooperation and coordination across biodiversity and chemicals and waste clusters. The purpose of

[10] Based on nationalmeasynergies.files.wordpress.com/2015/06/sourcebook-web.pdf (page 3)

this review is to improve the knowledge base on potential opportunities for strengthening coordination and collaboration between clusters, which will hopefully lead to synergies between the clusters and identification of ways to advocate further cooperation and achievement of synergies. Opportunities for synergies and the potential benefits are explored with a wide scope, but in addition they are illustrated through a case study, focusing on the impact of chemical pesticides on biodiversity.

8. The project will produce recommendations that aim to provide useful input to discussions at international level, including the post-2020 and beyond 2020 processes, future sessions of the United Nations Environment Assembly (UNEA), and individual MEA advisory governance body meetings, and contribute to the future processes aiming at strengthening the international environmental governance system. However, the primary focus is on identifying opportunity for actions that can be taken at the national level, and actions that can be taken at the international level in order to promote, facilitate and support such actions. In doing so it also identifies potential regional support mechanisms, and examples of support that might be provided by other organizations/initiatives.

9. One of the primary purposes of the review is to provide input to a dialogue among the representatives of MEA secretariats, the SAICM Secretariat and a selected number of national focal points to the conventions and SAICM from across all regions. This will take the form of an expert workshop convened by the United Nations Environment Programme (UNEP) in the third quarter of 2021. The review has been developed by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) with the guidance of a steering committee representing the Governments which comprise the Nordic Council of Ministers. All relevant MEA Secretariats, the SAICM secretariat, all participants in the workshop and a number of other experts have had opportunity to provide feedback on drafts of the review at various stages, as have colleagues within UNEP and UNEP-WCMC.

10. The review report comprises six sections.

- The section on **pollution as a key driver of biodiversity loss** provides background on the impacts of chemicals and waste on biodiversity and ecosystem services, drawing on multiple sources and in particular a broad range of global assessments.
- The section on **international policy response to the impacts of pollution** briefly summarises how intergovernmental agreements and processes have evolved to address the types of concern summarised in the previous section.
- The section on **current extent of alignment of the policy response** provides examples of where the need for coordination and cooperation has been recognised and acted upon when considering the relationship between the two clusters.
- The section on **national approaches to implementation** explores a range of the types of approaches being used at the national level to address international obligations with respect to each cluster.
- The section on the **post-2020 and beyond 2020 strategy processes** summaries the process currently under way to develop a post-2020 global biodiversity framework and the intersession process to prepare recommendations regarding the Strategic Approach and sound management of chemicals and waste beyond 2020.
- Drawing on the previous sections, the section on **options for action** sets out possible actions that might be considered in strengthening coordination and collaboration, focusing on what needs to be done at the national level, what needs to be done and MEA or process level, and what other support might be required.

11. The review has been broad-based in the way in which it has addressed chemicals and waste, their impacts on biodiversity and ecosystem services, and options for action in the context of MEAs and SAICM. To illustrate some of the detail, this broad view is supplemented by more detailed consideration of chemical pesticides. This is presented as a series of boxes throughout the text.

Box 1: Introduction to chemical pesticides case study boxes

Where it is useful to the narrative, additional information is provided in boxes like this on aspects of the study as they relate to chemical pesticides. The intention is not to provide a complete overview of the impacts of chemical pesticides on biodiversity and ecosystem services and response to this at both national and international levels, as that would be a major study in its own right. Rather the intention is to provide additional context that will hopefully help support the overall study and its conclusions.

This focus was chosen by the Nordic Council of Ministers because of growing concerns over the impact of certain pesticides on pollinators and pollination. As highlighted by IPBES assessment report on pollinators, pollination and food production,[11] 75% of food crops and nearly 90% of wild flowering plants depend on pollinators yet pollinators are being threatened by human activities including extensive use of pesticides and fertilizers which have proven to have lethal effects on them. This example therefore highlights in a very concrete way the close interlinkage between biodiversity and chemicals and waste and the need to shift from business as usual to solving the challenges in a more coherent and synergistic manner.

The Food and Agriculture Organisation of the United Nations (FAO) has defined a ***pesticide*** as: "*any substance or mixture of substances intended for preventing, destroying or controlling any pest, including vectors of human or animal disease, unwanted species of plants or animals causing harm during or otherwise interfering with the production, processing, storage, transport or marketing of food, agricultural commodities, wood and wood products or animal feedstuffs, or substances which may be administered to animals for the control of insects, arachnids or other pests in or on their bodies*".[12]

[11] ipbes.net/assessment-reports/pollinators
[12] www.fao.org/3/Y4544E/y4544e02.htm

Pollution as a key driver of biodiversity loss

12. **There is clear concern about the unintended impacts of chemicals and waste on biodiversity and ecosystem services, with evidence presented in multiple global assessments.** Each of these assessments considered an extensive literature, and more detail on the nature of the risk and the sources of information used to reach their conclusions can be found each of the assessment reports. The findings of the different assessment reports included the following:

- The fifth edition of the Global Biodiversity Outlook[13] launched by the CBD in September 2020 – shortly before the United Nations Summit on Biodiversity – concluded that *"pollution, including from excess nutrients, pesticides, plastics and other waste, continues to be a major driver of biodiversity loss"*.

- The IPBES Global Assessment Report on Biodiversity and Ecosystem Services[14] concluded that *"many types of pollution … are increasing, with negative impacts for nature"*, identifying pollution as one of five direct drivers of change.

- The First Global Integrated Marine Assessment[15] identified concerns about "*increasing inputs of harmful material and excess nutrients into the ocean*" and, while the potential impacts considered were broader than biodiversity and ecosystem services, it was recognised that "*adverse impacts on marine ecosystems come from the cumulative impacts of a number of human activities*".

- The FAO report on State of Knowledge of Soil Biodiversity: Status, Challenges and Potentialities[16] concludes that "*the overuse and misuse of agrochemicals constitutes one of the main drivers to soil biodiversity loss, thus reducing the potential of soil biodiversity for a sustainable agriculture and food security*". This concern is also identified in the first edition of the Global Land Outlook[17] produced by UNCCD.

- The Global Assessment of Soil Pollution[18] published by FAO and UNEP concludes that not only does soil pollution affect both above and below ground biodiversity directly in various ways, but in addition "*polluted soils in turn become a source of pollution for groundwater, through leaching of contaminants, and for freshwater and marine environments, since contaminants can be transported offsite through wind and water erosion*".

13. **Each assessment has a different focus and concentrates on different areas of concern with respect to chemicals and waste and the ways in which they enter ecosystems and impact on biodiversity.** The IPBES global assessment, for example, was particularly concerned with three types of pollution: emissions into the atmosphere; contaminants dissolved in and carried by water; and disposal or deposition of solids. It also recognised the potential impacts of increasing use of fertilizers and pesticides as a result of efforts to feed a growing world population. The marine assessment considered 11 sources of harmful material and excess nutrients, including from land-based sources and from shipping, and given the nature of the ocean environment these have potential impacts on countries other than the source country, as well as areas beyond national jurisdiction. The first of the FAO reports was primarily concerned with overuse and misuse of chemicals in agricultural practice,

[13] www.cbd.int/gbo5
[14] www.ipbes.net/global-assessment
[15] www.un.org/regularprocess/content/first-world-ocean-assessment
[16] www.fao.org/documents/card/en/c/CB1928EN/
[17] knowledge.unccd.int/sites/default/files/2018-06/GLO English_Full_Report_rev1.pdf
[18] www.fao.org/documents/card/en/c/cb4894en/

while the Global Assessment of Soil Pollution identifies multiple sources including agriculture, industrial activities and mining, waste disposal and management, industrial accidents, military activity and natural disasters.

14. **There is also concern that chemicals and waste exacerbate threats to biodiversity and ecosystem services when experienced in combination with other threats.** For example, the IPCC Special Report on Ocean and Cryosphere in a Changing Climate[19] indicates that the impacts of climate change on ocean and cryosphere ecosystems can be exacerbated by other factors such as pollution, and therefore addressing pollution needs to be part of the response options. Similarly, exacerbation of climate change impacts on natural ecosystems by other 'stressors' including pollution was identified as being of concern in the IPCC Fifth Assessment Report (Working Group II).[20] The Global Biodiversity Outlook also recognised that different threats to biodiversity were interconnected, as did the report prepared by the BRS and Minamata Convention Secretariats on key insights on the interlinkages between the chemicals and waste MEAs and biodiversity,[21] and the report of the 2021 meeting of the IWC Scientific Committee.[22]

15. **Meanwhile the size of the chemicals industry in terms of financial value is already very large and projected to double by 2030.** This was one of the conclusions of the second edition of the Global Chemicals Outlook,[23] which also recognised that hazardous chemicals and other pollutants (including pharmaceutical pollutants) continue to be released in large quantities, are ubiquitous in the environment, and are accumulating in material stocks and products. There are therefore both current concerns and concerns about legacy, and this relates to both chemicals that have been deliberately introduced for an intended purpose and those that have been released into the environment through inappropriate use or accidental release.

16. **For example, increasing demand for food and biofuels will likely lead to a continued increase in nutrient and chemical inputs, with pesticide and fertilizer use expected to double by 2050.** This was part of one of the findings of the IPBES assessment on land degradation and restoration,[24] which also identified specific concerns about high use of chemicals in intensive agricultural systems leading to eutrophication of water bodies and toxic effects of pesticides on non-target species. This also relates to concerns expressed in the FAO report on State of Knowledge of Soil Biodiversity[25] and the UNCCD Global Land Outlook[26] on the impacts of overuse and misuse of agrochemicals.

17. **Meanwhile illegal trade of chemicals and waste continues to be a serious problem in some parts of the world.** The independent evaluation of SAICM[27] reported that significantly more work needed to be done is this area, and identified a number of gaps limiting progress including: lack of verification and information on traded chemicals, products and waste; capacity in customs control systems; lack of ability to regulate illegal traffic; lack of enforcement of anti-corruption laws; and insufficient international information sharing and cooperation. Such illegal activity will inevitably increase impacts of chemicals and waste on biodiversity and ecosystem services.

[19] www.ipcc.ch/srocc/
[20] www.ipcc.ch/report/ar5/wg2/
[21] wedocs.unep.org/bitstream/handle/20.500.11822/36088/BIKI.pdf
[22] archive.iwc.int/pages/view.php?ref=19276
[23] gpcpe.org/wp-content/uploads/2019/03/GCOII_synth.pdf
[24] ipbes.net/assessment-reports/ldr
[25] www.fao.org/documents/card/en/c/CB1928EN/
[26] knowledge.unccd.int/sites/default/files/2018-06/GLO English_Full_Report_rev1.pdf
[27] www.saicm.org/Portals/12/Documents/reporting/FinalReport_Independent-Evaluation-SAICM-2006-2015.pdf

18. **The volume of solid waste generated each year is already high and projected to increase very significantly in the coming years.** This is one of the findings of the World Bank Group Report on What a Waste 2.0.[28] The extent to which waste is properly managed varies widely both within countries and between countries, and to some extent across sectors. At the same time the amount of waste generated in low income counties is projected to increase even more rapidly in the coming years, as waste generation is an inevitable result of population growth, increasing urbanization and economic development. This means that the types of impacts on biodiversity resulting from waste will vary quite significantly geographically.

19. **For example, marine litter originating from both land-based sources and sea-based activities has become an issue of increasing concern in recent years.** This was recognised, for example, in both the First Global Integrated Marine Assessment[29] and the first edition of the Global Waste Management Outlook.[30] Part of the problem is that the overall magnitude of litter entering the sea annually is unknown, and the amount at any given location will vary depending on a range of factors including not only the 'entry point' and physical characteristics of the litter itself, but also factors such as hydrological and meteorological conditions, and movement through ocean currents.

20. **Chemicals and waste enter the environment in a range of different ways and have a range of different types of impact on biodiversity and ecosystem services.** For example, the report prepared by the Secretariats of the BRS and Minamata Conventions on key insights into interlinkages between the chemicals and waste MEAs and biodiversity[31] provides examples of the impacts of chemicals and waste and how they enter the environment. More details on the following examples can be found in the study report and the various original sources used in producing it.[32]

- ***Mercury*** is highly toxic and persistent in the environment. Once released, mercury and its compounds can be transported through air and water, persisting in sediments, soil and the biota. Mercury accumulates through food chains, with impacts on physiology/health, behaviour and reproductive success. Top predatory animals in aquatic food chains are particularly at risk. Food webs in many of the world's ecosystems have mercury levels which cause concern, and tropical ecosystems appear particularly sensitive. In recent years there has been concern about increasing use of mercury in artisanal and small-scale gold mining.

- ***Persistent Organic Pollutants*** (POPs) also become widely distributed throughout the environment, and also accumulate through food chains. The effects of POPs have been observed in a range of ecosystems, with impacts on predator species in these ecosystems relating to both health and reproduction. In this case the primary source is through industrial chemicals and processes, although other sources include pesticides and problems can be exacerbated by waste as POPs are both contained in and absorbed by plastics.

- ***Pesticides*** are different in that they are intended to have a negative impact of some form on biodiversity, and they are widely used in many systems of agriculture. The problems come through unexpected or unintended impacts, through continued use even though those impacts are known or suspected, and through inappropriate or uncontrolled use. The impacts

[28] openknowledge.worldbank.org/handle/10986/30317
[29] www.un.org/regularprocess/content/first-world-ocean-assessment
[30] wedocs.unep.org/bitstream/handle/20.500.11822/9672/-Global_Waste_Management_Outlook-2015Global_Waste_Management_Outlook.pdf.pdf
[31] wedocs.unep.org/bitstream/handle/20.500.11822/36088/BIKI.pdf
[32] The study report needs to be referenced once it is available, as well as reviewed to identify any further inputs/links for this study. We need to ensure they are aligned. As of early mid-August, this report has still not been released.

on insects, birds, fish are well documented, and more generally on soil biodiversity, with some species of insects being vulnerable to pesticide impacts even at very low exposure levels.

- ***Hazardous and other wastes*** take many different forms and are released into the environment in a range of different ways (e.g. dumping of solid waste, release of liquid waste, open burning). They therefore have a range of different impacts on biodiversity and ecosystem services. Marine and coastal species, for example, can be severely affected by marine debris through ingestion, entanglement, ghost fishing and dispersal by rafting, as well as impacts on their habitat. Pollution from major dump sites, for example, can leach into rivers, affecting both nearby and downstream freshwater and coastal/marine habitats**.**

21. **There are many challenges and issues of concern that need to be considered and addressed**.[33] SAICM currently recognises eight issues of concern:[34] chemicals in products; endocrine disrupting chemicals, environmentally persistent pharmaceutical pollutants; hazardous substances in the life cycle of electrical and electronic products; highly hazardous pesticides; lead in paint; nanotechnology and manufactured nanomaterials; and per-and polyfluoroalkyl substances. The second edition of the Global Chemicals Outlook identifies 11 chemicals or groups of chemicals where emerging evidence suggests further environmental and/or health risks.[35] The UNEP assessment report on issues of concern[36] reviews each of these issues of concern, and also suggests ways in which issues of concern might be identified in future given the very large number of chemicals on the market and in use.

22. **Pharmaceutical residues are also present worldwide in surface water, groundwater, soil and within the biota**. This was reported on in the second edition of the Global Chemicals Outlook,[37] which recognised that pharmaceuticals are one of the chemical industries fastest growing segments, with an annual growth rate of 6.5%. The report noted that some pharmaceuticals were transported and accumulated within food webs, and that some were found to have endocrine disrupting effects in animals. A particularly well publicised concern over pharmaceuticals in recent years has been the impact of diclofenac, a non-steroidal anti-inflammatory drug used for treating cattle, which has been the cause of substantial declines in three species of *Gyps* vultures in South Asia.[38]

23. **Legacy chemicals and waste are found in some of the remotest regions of the world**. The second edition of the Global Chemicals Outlook[39] observed that PCBs have been detected at high concentrations in amphipods found in the deep ocean trenches, and organochlorine pesticides have been found in Himalayan glaciers. The First Global Integrated Marine Assessment[40] also found that "*marine debris is present in all marine habitats, from densely populated regions to remote points far from human activities, from beaches and shallow waters to the deepest ocean trenches*". Both the persistent nature of the chemicals and waste, and their transport are issues of concern, which also combine with concentration though food chains.

24. **Chemicals can cause environmental impacts which themselves then impact on biodiversity and ecosystem services.** An obvious example is those chemicals which damage the ozone layer and are thereby contributory to climate change. Ozone depletion is caused by emissions of 'anthropogenic

[33] wedocs.unep.org/bitstream/handle/20.500.11822/33807/ARIC.pdf
[34] www.saicm.org/Implementation/EmergingPolicyIssues
[35] gpcpe.org/wp-content/uploads/2019/03/GCOII_synth.pdf
[36] wedocs.unep.org/bitstream/handle/20.500.11822/33807/ARIC.pdf
[37] gpcpe.org/wp-content/uploads/2019/03/GCOII_synth.pdf
[38] See www.cms.int/sites/default/files/document/cms_cop12_res.12.10_vultures_e.pdf and portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2016_RES_022_EN.pdf
[39] gpcpe.org/wp-content/uploads/2019/03/GCOII_synth.pdf
[40] www.un.org/regularprocess/content/first-world-ocean-assessment

ozone-depleting substances' from industrial and other human activities, and the subsequent release of halogen gases. Fortunately, according to the Scientific Assessment of Ozone Depletion: 2018,[41] these emissions and their impacts are largely decreasing. This is mentioned here as there may be opportunities for cooperation in the ways in which chemicals and their potential and actual impacts are reviewed and managed.

Box 2: Impacts of chemical pesticides on biodiversity[42]

a) Pesticides are essentially designed to have an impact on aspects of biodiversity, and their use is usually focused on particular on target organisms or particular locations or facilities (for example storage containers or transport). Some impacts on biodiversity are therefore intentional, however in meantime they can contaminate air, soil, water and vegetation, and impact many non-target species including beneficial insects and non-target plants, as is indicated below. Around 1000 different pesticides are in use currently,[43] including insecticides, fungicides, nematicides, rodenticides and herbicides.

b) The UNEP Assessment Report on Issues of Concern[44] referred to earlier reviews chemicals and waste issues identified as posing risks to human health and the environment. One of the eight SAICM issues of concern[45] reported on is production, transport and use of highly hazardous pesticides (HHPs). In addition, two of the 11 chemicals and groups of chemicals identified by the second edition of the Global Chemicals Outlook as chemicals where emerging evidence already indicates a risk are used as pesticides - glyphosate and neonicotinoids.[46]

c) The report prepared by the Secretariats of the BRS and Minamata Conventions on key insights into interlinkages between the chemicals and waste MEAs and biodiversity[47] observes that "*pesticide use is a well-documented threat to birdlife, with bird populations having declined 20-25% since pre-agricultural times with one of the main causes being pesticides*" and provides a number of specific examples. They also find that use of insecticides has resulted in "*widespread contamination of agricultural soils, freshwater resources, wetlands, non-target vegetation, and estuarine and coastal ecosystems*". They are further concerned that "*the combination of prophylactic use, persistence, mobility systemic properties and chronic toxicity is predicted to result in substantial impacts on biodiversity and ecosystem functioning*". Their findings include: significant declines in terrestrial insect abundance; reduction in aquatic plants; reduced fish egg production; high mortality and reduced growth in amphibians. More details and further examples of the impacts on biodiversity can be found in the full study report and original sources used in producing it.[48]

d) The IPBES assessment on pollinators, pollination and food production[49] found that wild pollinators are declining in occurrence and diversity, and that pesticides are one of a number of key threats. This is of particular concern because of the critical importance of pollination and pollinators

[41] ozone.unep.org/sites/default/files/2019-04/SAP-2018-Assessment-report-ES-rev (1).pdf
[42] Two technical reports that will be directly relevant to this section are not currently available, although we have been able to draw on the summaries for policymakers. These are the report prepared by the Secretariats of the BRS and Minamata Conventions on interlinkages between the chemicals and waste MEAs and biodiversity, and the UNEP report on environmental and health impacts of pesticides and fertilizers and ways of minimizing them.
[43] www.fao.org/documents/card/en/c/cb4894en/
[44] wedocs.unep.org/bitstream/handle/20.500.11822/33807/ARIC.pdf
[45] saicmknowledge.org/program/highly-hazardous-pesticides
[46] www.unep.org/explore-topics/chemicals-waste/what-we-do/policy-and-governance/global-chemicals-outlook
[47] wedocs.unep.org/bitstream/handle/20.500.11822/36088/BIKI.pdf
[48] The study report needs to be referenced once it is available, as well as reviewed to identify any further inputs/links for this study. We need to ensure they are aligned. As of mid-August, this report has still not been released.
[49] ipbes.net/assessment-reports/pollinators

to natural systems (including maintenance of genetic diversity in wild plants) and agriculture and food production. Risk to pollinators appears to arise from a combination of toxicity and the level of exposure, which varies geographically with the compounds used and the ways in which the landscape is managed. There is growing concern about the potential risks to bees and other pollinators from neonicotinoids, which have been used quite extensively since the early 1990s,[50] as well as impacts on other groups such as mayflies.[51]

e) The report prepared by the Secretariats of the BRS and Minamata Conventions on interlinkages between the chemicals and waste MEAs and climate change[52] found that climate change can lead to increased use of pesticides to combat higher incidences of pest and disease outbreaks, as increased distribution, growth and reproduction of pests is observed at higher temperatures and in wetter conditions, and because the efficacy of pesticides decreases with increased temperature. One study in China suggested that as a result of increased temperature and precipitation pesticide usage could rise by 1.1 to 2.5% by 2040 and by 2.4 to 9.1% by 2070, despite current efforts to reduce pesticide usage.[53]

f) The Global Assessment of Soil Pollution[54] published by FAO and UNEP concludes that "*many pesticides are highly persistent in the environment and toxic residues can affect beneficial and non-target organisms … and contaminate waters and soils on a global* scale". They also recognised that a number of pesticides and pesticide residues "*can bio-accumulate in high concentrations in plants and animals and cause biomagnification in the food chain*". The potential impact on ecosystem health is a concern, and this is compounded by the potential impacts of pesticides in combination given the number of pesticides in use.

g) The UNEP report on environmental and health impacts of pesticides and fertilizers and ways of minimising them[55] found that "*pesticide residues have been detected in a wide range of environmental media, including surface and groundwater, soils and air … even … in remote areas such as the Arctic*". As well as current-use pesticides, these included "*legacy pesticides (e.g. organochlorines), which may not have been authorized for decades in many counties*".

Box 3: Pathways for chemical pesticide impact on biodiversity[56]

a) Pesticides are deliberately introduced into the environment with the intention of controlling one or more 'pest' species that are impacting human well-being in some way. They may, for example, be used to increase agricultural productivity, to control pest species in containers and transport facilities, or to improve the health and quality of life of human populations or their livestock. The CMS Review of Ecological Effects of Poisoning[57] found that globally most of the drivers resulting in exposure of birds to toxic substances were related to three activities: (a) agricultural protection of crops and livestock from predators, pests, and diseases; (b) hunting and fishing; and (c) harvesting birds with poison-baits for consumption.

[50] www.unep.org/explore-topics/chemicals-waste/what-we-do/policy-and-governance/global-chemicals-outlook
[51] pubmed.ncbi.nlm.nih.gov/31373707/
[52] mercuryconvention.org/Portals/11/documents/Climate_Change_Interlinkages.pdf
[53] https://link.springer.com/article/10.1007/s11027-017-9755-y
[54] www.fao.org/documents/card/en/c/cb4894en/
[55] www.unep.org/resources/report/environmental-and-health-impacts-pesticides-and-fertilizers-and-ways-minimizing
[56] Two technical reports that will be directly relevant to this section are not currently available, although we have been able to draw on the summaries for policymakers. These are the report prepared by the Secretariats of the BRS and Minamata Conventions on interlinkages between the chemicals and waste MEAs and biodiversity, and the UNEP report on environmental and health impacts of pesticides and fertilizers and ways of minimizing them.
[57] www.cms.int/sites/default/files/document/COP11_Inf_34_Review_effects_of_Poisoning_on_Migratory_Birds_Eonly.pdf

b) Agriculture covers more than a third of the terrestrial land area, and large-scale agriculture puts significant pressures on biodiversity including through adverse impacts resulting from pesticides in particular in intensive crop production systems.[58] Meanwhile, pesticide production is a multi-million dollar industry and global demand, production and use has expanded steadily,[59] with herbicides such as glyphosate accounting for a very high proportion of global pesticide use.[60]

c) The UNEP report on environmental and health impacts of pesticides and fertilizers and ways of minimising them[61] found that pesticides and their degraded products were ubiquitous in the environment, including in soils and surface and groundwater. Meanwhile several direct drivers were tending to increase pesticide use, including agricultural intensification, pesticide resistance, genetically modified crops, marketing practices and commodity prices. Use differs with crop type and location, but there are also fundamental differences between smallholder and industrial agriculture. There are also concerns about inappropriate use, inadequate training and information, and limited availability of appropriate equipment.

d) While the majority of pesticides are used in agriculture, there are other uses. As observed in the UNEP report,[62] these include non-crop uses such as disease vector control, domestic uses, and amenity and industrial applications. While such uses represent only about 10-15% of the total market, there is concern that at least some of these are more often used by untrained non-professionals.

e) In addition to any issues relating to the actual use of pesticides, consideration also needs to be given to any issues associated with production, transport, storage and disposal. This includes addressing trade in substandard, illegal and counterfeit pesticides,[63] use of which undermines efforts to promote more sustainable and lower-risk products. The International Code of Conduct on Pesticide Management[64] addresses: policy and legislation; production; registration; quality control; trade; packaging, labelling and advertising; distribution and sales; use; food safety, health and environment; and waste management.

f) Pesticides have been in use for decades, and there are therefore also legacy issues. The Global Assessment of Soil Pollution[65] specifically identifies "*excessive and inappropriate use of pesticides, and the mismanagement of obsolete and highly harmful pesticide stocks*" as a major concern, and draws attention to the fact that "*stores of obsolete pesticides still occur in many countries*", and that "*spills and leakages from these depots continue to cause significant soil pollution*". They are concerned that "*pesticides have been spread throughout the earth-atmosphere system and pesticide contamination occurs worldwide*".

Key points relating to strengthening coordination and collaboration between clusters

Concerns can relate to:

- *Introduction* of chemicals and waste into the environment
- *Movement* of chemicals and waste once released
- *Persistence* of chemicals and waste in the environment

[58] wedocs.unep.org/bitstream/handle/20.500.11822/36088/BIKI.pdf
[59] www.unep.org/resources/report/environmental-and-health-impacts-pesticides-and-fertilizers-and-ways-minimizing
[60] wedocs.unep.org/bitstream/handle/20.500.11822/33807/ARIC.pdf
[61] www.unep.org/resources/report/environmental-and-health-impacts-pesticides-and-fertilizers-and-ways-minimizing
[62] www.unep.org/resources/report/environmental-and-health-impacts-pesticides-and-fertilizers-and-ways-minimizing
[63] www.unep.org/resources/report/environmental-and-health-impacts-pesticides-and-fertilizers-and-ways-minimizing
[64] www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Code_ENG_2017updated.pdf
[65] www.fao.org/documents/card/en/c/cb4894en/

- *Potential impacts* of chemicals and waste on biodiversity and ecosystem services
- *Research* on new chemicals
- *All stages* of production, transport, storage, use and disposal of chemicals

Chemicals and waste can be introduced into the environment through:

- *Deliberate introduction* for an intended purpose
- *Inappropriate use* such as use in inappropriate locations, quantities or ways
- *Release as a result of human action* or inaction (chronic or disaster)
- *Accidental release* outside of human control

Other issues to be considered include:

- *Level of risk* can vary for a range of reasons
- Adverse impacts can occur even in the case of authorized use
- *Recognition and understanding* of impact and therefore risk may change over time
- *Location* – recognising that impacts may be remote from the source
- *Scale* – releases can result from artisanal/small-scale or industrial scale activities
- *Stress* – exacerbation of problems resulting from multiple threats
- *Combination* – lack of understanding of the impacts of chemicals in combination

Potential key actions:

- *Sharing of knowledge*, including notification of problems
- *Cooperative action* to understand and address issues of concern

International policy response to the impacts of pollution

25. **International concern for achieving the sound management of chemicals and waste is clearly expressed in the 2030 Agenda for Sustainable Development.** Three targets directly relate to this. Target 12.4 "*by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment*", Target 12.5 "*by 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse*", and Target 3.9 *"by 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination"*. Other targets are also relevant, including those in SDGs 14 and 15 as considered in paragraph 33 below.

26. **This confirms concerns that have been expressed in intergovernmental fora numerous times over the decades since the United Nations Conference on the Human Environment in 1972.**[66] For example, chapters 19-22 of Agenda 21[67] adopted at the 'Earth Summit' in 1992 covered issues relating to environmentally sound management of toxic chemicals and hazardous wastes. The Johannesburg Plan of Implementation[68] adopted at the World Summit on Sustainable Development in 2002 renewed the commitment to the sound management of chemicals and hazardous waste, and *inter alia* promoted the ratification and implementation of relevant international instruments on chemicals and hazardous waste.

27. **As a result of such concerns, several international agreements have been adopted and are gradually extending and enhancing their impact.** These address a range of issues relevant to biodiversity and ecosystem services, although this is not their only or necessarily their primary concern. These international agreements include the following:

- *Montreal Protocol on Substances that Deplete the Ozone Layer* adopted in 1987 and entering into force in 1989. The Protocol regulates the production and consumption of man-made chemicals identified as ozone depleting substances. The treaty continues to be amended and adjusted over time in response to new scientific, technical and economic developments. The most recent *Kigali Amendment* (which entered into force in 2019) aims to reduce production and consumption of hydrofluorocarbons (HFCs), which are potent greenhouse gases.

- *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* adopted in 1989 and entering into force in 1992. The Convention was developed in response to growing concern about export of hazardous waste and its deposition in Africa and other parts of the developing world, and the overarching objective of the Convention is to protect human health and the environment against the adverse effects of hazardous waste. The most recent amendments to the Convention, the *Plastic Waste Amendments*, which became effective as of January 2021, aim to enhance control of the transboundary movement of plastic waste, and clarify the scope of the Convention as it applies to such waste.

- *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* adopted in 1998 and entering into force in 2004. The objectives of the Convention are to promote shared responsibility and cooperative efforts among Parties in international trade of certain hazardous chemicals, and to contribute

[66] undocs.org/en/A/CONF.48/14/Rev.1
[67] sustainabledevelopment.un.org/content/documents/Agenda21.pdf
[68] digitallibrary.un.org/record/478154?ln=en

to environmentally sound use of those chemicals by: facilitating information exchange about them; providing for a national decision-making process on their import and export; and disseminating these decisions to Parties.

- *Stockholm Convention on Persistent Organic Pollutants* adopted in 2001 and entering into force in 2007. The objective of the Convention is to protect human health and the environment from persistent organic pollutants, the context not only being the potentially harmful effects of these chemicals, but also the fact that given their long-range transport, no one government acting alone can protect its citizens or its environment from POPs. Concerns are also identified with respect to bioaccumulation in ecosystems.

- *Minamata Convention on Mercury* adopted in 2013 and entering into force in 2017. The objective of the Convention is to protect the human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. As with the Stockholm Convention, particular reference is made to concern about bioaccumulation.

28. **Within the marine realm the United Nations Convention on the Law of the Sea (UNCLOS) also includes relevant provisions.** These include articles relating to pollution of the marine environment and dumping. Pollution of the marine environment covers the introduction by man, directly or indirectly, of substances which result or are likely to result in harm marine life, and dumping covers any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea, other than as part of their normal operations. Articles are primarily concerned with prevention, reduction and control, and promote cooperation, notification and contingency planning.

29. **A range of regional agreements also address specific aspects of the chemicals and waste agenda.** For example:

- The regional seas conventions generally include provisions addressing pollution at sea, such as oil spills and movement of hazardous waste, as well as land-based sources of pollution. Most have also strengthened such provisions through protocols. The Barcelona Convention covering the Mediterranean Sea, for example, has protocols on, *inter alia*: dumping from ships and aircraft; prevention of pollution from ships and emergency situations; land-based impacts; pollution from exploration and exploitation; and hazardous wastes.

- There are agreements relating to international rivers which address issues such as pollution loads and response to emergency situations given that what happens in one country may have implications for countries downstream.

- The Bamako Convention is a treaty of African nations prohibiting import into Africa of any hazardous waste, and movement across borders within Africa.[69] This treaty, which came into force in 1998, and is a response to Article 11 of the Basel Convention which encourages parties to enter into bilateral, multilateral and regional agreements on hazardous waste

30. **In addition to MEAs addressing specific groups of chemicals, it was considered necessary to also establish a multi-stakeholder forum with a broader mandate and scope** in order to fully address the goal of achieving by 2020 use and production of chemicals in ways that lead to the minimization of significant adverse effects on human health and the environment. This goal was agreed in Johannesburg Plan of Implementation[70] adopted at the World Summit on Sustainable Development in 2002, and four years later in 2006 the Strategic Approach to International Chemicals Management

[69] www.unep.org/explore-topics/environmental-rights-and-governance/what-we-do/meeting-international-environmental
[70] digitallibrary.un.org/record/478154?ln=en

(SAICM) was adopted as a policy framework to promote chemical safety around the world. SAICM comprises the Dubai Declaration on International Chemicals Management and an Overarching Policy Strategy[71] setting scope, statement of needs, objectives, financial considerations, underlying principles and approaches, and implementation and review arrangements.

31. **Given that pollution is identified as one of the main drivers of biodiversity loss, the biodiversity-related conventions have themselves taken a number of actions.** Examples include the following, and this is added to in the next section which considers current alignment of policy responses.

- The *Strategic Plan for Biodiversity 2011-2020* negotiated by the CBD[72] includes Aichi Biodiversity Target 8 that "*by 2020 pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity*". According to their national reports, the actions that Parties have taken in addressing this target include regulatory approaches, setting up monitoring systems and standards, and promoting the development and improvement of infrastructure to improve waste management.[73] While pollution is not explicitly addressed in the Articles of the Convention,[74] several articles address it implicitly as they are concerned with threats to biodiversity and appropriate response.

- Article 3.2 of the Ramsar Convention[75] requires Contracting Parties to be "*informed at the earliest possible time if the ecological character of any wetland in its territory and included in the List has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference*". This list referred to is the list of "*Wetlands of International Importance*" recognised under the Convention. The aim of this Article and any subsequent action is to maintain or restore ecological character. It also implies the importance of monitoring and requires reporting of change.

- Parties to CMS are expected, to the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger migratory species listed in Appendix I as endangered (in danger of extinction in all or part of its range). Resolution 11.15[76] on preventing poisoning of migratory birds encourages further actions and adopts *Guidelines to Prevent the Risk of Poisoning to Migratory Birds*.[77] Discussion on this issue was supported by a *Review of the Ecological Effects of Poisoning on Migratory Birds*.[78]

- The World Heritage Convention places obligations on States Party to ensure that "effective and active measures are taken for the protection, conservation and presentation" of identified and listed World Heritage Sites, preserving the values for which those sites were listed. However, World Heritage Sites are impacted by air and water pollution and periodically by catastrophic events (for example tailings dam failure) as is apparent from the State of Conservation Reports[79] and the third edition of the *IUCN World Heritage Outlook*.[80]

- The IWC has responsibility for providing for the proper conservation of whale stocks and is concerned about both chemical pollution and marine debris and the impacts that these have

[71] saicm.org/Portals/12/Documents/saicmtexts/New SAICM Text with ICCM resolutions_E.pdf
[72] www.cbd.int/doc/decisions/cop-10/cop-10-dec-02-en.pdf
[73] www.cbd.int/gbo5
[74] www.cbd.int/convention/text
[75] www.ramsar.org/sites/default/files/documents/library/current_convention_text_e.pdf
[76] www.cms.int/sites/default/files/document/cms_cop13_res.11.15_rev.cop13_e.pdf
[77] www.cms.int/sites/default/files/document/Guidelines to Prevent the Risk of Poisoning to Migratory Birds.pdf
[78] www.cms.int/sites/default/files/document/COP11_Inf_34_Review_effects_of_Poisoning_on_Migratory_Birds_Eonly.pdf
[79] See whc.unesco.org/en/soc/
[80] worldheritageoutlook.iucn.org/

on cetacean populations. A significant amount of research has been done on the effects of pollution, and the Scientific Committee is finalising plans for a new Pollution Programme. The most recent meeting of the Scientific Committee not only discussed this further, but also considered the intricate relationship between humans, animals and the environment.[81]

Box 4: Action on chemical pesticides promoted by intergovernmental agreements and processes

a) The Rotterdam Convention supports countries in making informed decisions about the import and use of those pesticides considered to be particularly hazardous. It provides mechanisms for countries to report adverse impacts on human health and the environment and obliges Parties to provide notification of the regulatory actions that they have taken to prohibit or severely restrict pesticides in response to the known adverse impacts. Annex III to the Convention currently includes 35 pesticides, three of which are considered severely hazardous.

b) The Stockholm Convention supports countries in eliminating production, use and inadvertent releases of persistent organic pollutants, or restricting production and use. Sixteen of the chemicals currently listed in the annexes to the Convention are pesticides, and one further pesticide is proposed for listing.

c) The Basel Convention aims to reduce hazardous waste generation and promote the environmentally sound management of hazardous wastes. This includes the management of waste from pesticides, and technical guidelines and manuals have been developed for assisting countries in the environmentally sound management of pesticides waste.

d) The Montreal Protocol aims to eliminate the production and use of ozone depleting substances, and one of these was used as a pesticide (methyl bromide). By January 2015 the global phase out of methyl bromide for all but a number of specific uses had been completed.

e) The Minamata Convention on Mercury aims to phase out the use of mercury in pesticides, biocides and topical antiseptics. Under Article 4, paragraph 1 of the Convention, each Party shall not allow manufacture, import or export of any containing mercury after 2020.

f) At the fourth session of International Conference on Chemicals Management (ICCM), highly hazardous pesticides (HHPs) were recognised as an issue of international concern and there were calls for concerted actions to address them.[82,83,84] The actions proposed include encouraging relevant stakeholders *"to undertake concerted efforts to implement the strategy at the local, national, regional and international levels, with emphasis on promoting agroecologically-based alternatives and strengthening national regulatory capacity to conduct risk assessment and risk management, including the availability of necessary information*".

g) SAICM has a community of practice on HHPs[85] and is working closely with FAO, UNEP and WHO amongst others. For example, FAO together with WHO produces the International Code of Conduct on Pesticide Management,[86] and there is a module on national management of pesticides in the toolbox developed by the multi-agency Inter-Organization Programme for the Sound Management of Chemicals (IOMC).[87]

[81] archive.iwc.int/pages/view.php?ref=19276
[82] www.saicm.org/Portals/12/documents/meetings/IP1/K1606013_e.pdf
[83] saicmknowledge.org/program/highly-hazardous-pesticides
[84] www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1502177_SAICM-ICCM4-8-e.pdf
[85] saicmknowledge.org/topic/community-practice#hhps
[86] www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Code_ENG_2017updated.pdf
[87] iomctoolbox.org/node/50034/steps

h) The CMS *Guidelines to Prevent the Risk of Poisoning to Migratory Birds*[88] make a significant number of references to the use of pesticides. This includes advice concerning Integrated Pest Management (IPM) as an effective approach for reducing the need for chemical pesticides.

i) IPPC is concerned with protecting global plant resources and its primary aim is to prevent plant pests from spreading and establishing in new countries and regions. Tools for phytosanitary risk management inevitably include chemical pesticides. IPPC provided guidance to national plant protection organizations on the replacement of or reduction in the use of methyl bromide as a phytosanitary measure.[89]

j) Following completion of the IPBES assessment on pollinators, pollination and food production, the CBD COP considered the findings and in decision XIII/15[90] made a number of recommendations relating to reducing risk from pesticides. This builds on the earlier work of the International Pollinators Initiative, and the decision also drew the attention to FAO's guidance on aspects of the risk of pesticides to wild bees[91] developed as part of a contribution to that initiative.

Key points relating to strengthening coordination and collaboration between clusters

Common objectives with respect to chemicals and waste:

- Reducing risk and impact
- Generating and sharing knowledge and information
- Improving governance arrangements
- Capacity-building and technical cooperation
- Controlling illegal activities
- Coordinating policies at national and regional levels

Types of actions identified include:

- Promoting *cooperation* on risk assessment and management
- *Policy and regulatory development* including codes of conduct
- Encouraging *contingency planning* to mitigate potential impacts of know risks
- Requiring *notification* of any release of hazardous materials
- Undertaking *monitoring* as a basis for identifying potential problems and impacts
- Developing and *sharing knowledge* relevant to risk, management and control
- *Science-based procedures* for risk assessment and risk management
- Identifying *alternative nature-based approaches* that reduce use of chemicals

[88] www.cms.int/sites/default/files/document/Guidelines to Prevent the Risk of Poisoning to Migratory Birds.pdf
[89] assets.ippc.int/static/media/files/publication/en/2017/08/R_03_En_2017-08-23_Combined_f3wtoE3.pdf
[90] www.cbd.int/doc/decisions/cop-13/cop-13-dec-15-en.pdf
[91] www.fao.org/3/i3116e/i3116e.pdf

Current extent of alignment of the policy response

32. **The importance of policy coherence is recognised at the highest level.** For example, in paragraph 89 of *The Future We Want*,[92] the outcome document of the UN Conference on Sustainable Development, Heads of State and Government and high-level representatives acknowledged the work already undertaken to enhance synergies among conventions in the chemicals and waste cluster, and encouraged MEA parties to consider further measures, in these and other clusters, as appropriate, to "*promote policy coherence at all relevant levels, improve efficiency, reduce unnecessary overlap and duplication and enhance coordination and cooperation among the multilateral environmental agreements*".

33. **The need for policy alignment is also implicit in the 2030 Agenda for Sustainable Development and the Sustainable Development Goals.**[93] The SDGs and their targets are presented as being "*integrated and indivisible*", as the "*interlinkages and integrated nature of the SDGs are of crucial importance in ensuring that the purpose of the … Agenda is realized*". The implication is that achievement of SDG 12 and its associated targets 12.4 and 12.5 relating to chemicals and waste are *inter alia* important for achieving SDG 14 (on marine ecosystems) and SDG 15 (on terrestrial ecosystems) and their respective targets, as well as Target 6.6 which relates to protection and restoration of all water-related ecosystems and Target 3.9 which is concerned with the health implications of pollution and contamination. This is relevant at all levels, including for national action. Meanwhile, in reviewing the High-level Political Forum on Sustainable Development (HLPF) the UN General Assembly has agreed to a strengthened focus on interlinkages, synergies and trade-offs.[94]

34. **There is increasing recognition of ways in which chemicals and waste management are converging**, according to the Global Chemicals Outlook.[95] In part this is through implementation of the waste hierarchy from the preferred reduction and reuse, through recycling and composting to the least preferred options of energy recovery, and treatment and disposal. This also places the emphasis on sustainable resource management, resource efficiency and life cycle management. The same review found that significant resources can be saved by sharing knowledge on chemical management instruments more widely and by enhancing mutual acceptance of approaches in areas ranging from chemical hazard assessment to alternatives assessment, and that global knowledge gaps can be filled more readily by taking steps to harmonize research protocols and strengthen the science-policy interface through enhanced collaboration of scientists and decision-makers.

35. **Increased alignment in the chemicals and waste cluster is also evidenced by the synergies process in the BRS Conventions.** In order to facilitate implementation of the conventions, the COPs of the BRS Conventions adopted a series of decisions aimed at enhancing cooperation and coordination among the conventions at all levels.[96] In 2017, review of the synergies arrangements concluded, for example that the "*quantity and quality of technical and scientific support provided to Parties has improved, and there has been good progress towards joined-up policy-making and a 'lifecycle' approach to hazardous chemicals and waste management among the Parties*".[97] This is complemented by the work of SAICM with multiple stakeholders. The secretariats of the BRS and

[92] sustainabledevelopment.un.org/content/documents/733FutureWeWant.pdf
[93] sdgs.un.org/2030agenda
[94] See www.undocs.org/en/A/75/L.102 (when released it will be at www.undocs.org/en/A/RES/75/290)
[95] gpcpe.org/wp-content/uploads/2019/03/GCOII_synth.pdf
[96] See www.brsmeas.org/Decisionmaking/Overview/SynergiesProcess and documents referred to on this page
[97] See UNEP/CHW.13/INF/43 at www.brsmeas.org/Decisionmaking/COPsandExCOPs/2017COPs/2017COPs/Overview

Minamata conventions also collaborate closely in areas of mutual interest such as mercury wastes, effectiveness evaluation, financial resources, compliance, and technical assistance.[98]

36. **Meanwhile many governments are taking a more integrated approach to implementing the biodiversity-related conventions at the national level** through increasing the extent to which their national biodiversity strategies and action plans support the implementation of MEAs other than the CBD,[99] through national ecosystem assessments[100] and through the establishment of national biodiversity platforms[101] or other science-policy mechanisms (for example a number of countries have institutions established for this purpose). Having said that there is need for this integration to be increased, as is clear from decision XIII/24[102] of the CBD Conference of the Parties and the report of the Second Consultation Workshop of Biodiversity-related Conventions on the Post-2020 Global Biodiversity Framework (CBD/SBI/3/INF/29).[103]

37. **CBD Parties have reported on efforts to address Aichi Biodiversity Target 8 on pollution; although it is not clear from the synthesis reports available[104] to what extent there has been active consideration of alignment in implementation.** Having said that, the activities undertaken clearly relate as Parties reported in their sixth national reports that actions being undertaken included regulatory approaches, setting up monitoring systems and standards, and promoting the development and improvement of infrastructure to improve waste management. Commonly reported policies included regulation of fertilizer use, monitoring agricultural runoff and placing caps on nitrogen use. With regard to plastic pollution, commonly reported actions included bans on certain types of plastics, and awareness campaigns and clean-up activities.

38. **The Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets provided a valuable framework for alignment of MEAs on biodiversity related issues, including with respect to implementation at the national level.** For example, several Regional Seas Conventions actively sought to align their actions with relevant Aichi Biodiversity Targets, including Target 8 on pollution, recognising their ability to promote implementation within their respective regions.[105] In both the Ramsar Strategic Plan 2016-2024[106] and the CMS Strategic Plan for Migratory Species 2015-2023[107] there are annexes relating the Aichi Biodiversity Targets, including Target 8 on pollution, to the targets of the respective conventions facilitating a degree of alignment between efforts to implementing the conventions.

39. **The CMS has taken active steps to promote increased cooperation in preventing the poisoning of migratory birds, also recognising the relevance of poisoning to species other than birds.** CMS Resolution 11.15[108] actively promotes consultation and cooperation across sectors in addressing the problems, including cooperation in implementing international agreements relating to both biodiversity and chemicals and waste clusters. In this resolution the CMS COP also adopts Guidelines

[98] www.basel.int/Partners/MEAs/TheMinamataConvention/tabid/3895/
[99] e.g. wedocs.unep.org/bitstream/handle/20.500.11822/25656/post2010_NBSAP_Assessment.pdf
[100] e.g. www.cbd.int/doc/c/73ad/c55b/615e1f1e1882ab9807758d0e/sbstta-24-inf-18-en.pdf
[101] e.g. Appendix III of www.ipbes.net/sites/default/files/2021-05/ipbes_8_inf_9_capacity_building_en.pdf
[102] www.cbd.int/doc/decisions/cop-13/cop-13-dec-24-en.pdf
[103] www.cbd.int/doc/c/39f2/7257/df0b4d2bbdd7e383051e58f0/sbi-03-inf-29-en.pdf
[104] See for example document CBD/SBI/3/2/Add.2 on www.cbd.int/conferences/sbstta24-sbi3/sbi-03/documents
[105] See for example www.cbd.int/doc/c/0c09/8814/cc8c0cd04f77b9a61240a33c/sbstta-24-inf-24-en.pdf
[106] www.ramsar.org/sites/default/files/hb2_5ed_strategic_plan_2016_24_e.pdf
[107] www.cms.int/sites/default/files/document/Res_11_02_Strategic_Plan_for_MS_2015_2023_E_0.pdf
[108] www.cms.int/sites/default/files/document/cms_cop13_res.11.15_rev.cop13_e.pdf

to Prevent the Risk of Poisoning to Migratory Birds[109] which explicitly identifies the role of the Rotterdam Convention as well as legislative and non-legislative actions that Parties and other can take.

40. **Concern about chemical pollution led to recommendations that the IWC work more closely with other institutions including the Chemicals Conventions.** The IWC Scientific Committee initiated research on the effects of chemical pollution on cetacean populations,[110] in particular persistent organic pollutants and mercury, and *inter alia* recommended engagement with the Chemicals Conventions in addressing the issue of chemical pollution, in particular the Stockholm Convention and the Minamata Convention. The research necessary for understanding the likely impacts was a key element in identifying potential impacts and where action might be needed.

41. **It is also important to recognise that biodiversity can help to reduce the impacts of pollution in particular, and this consideration also has the potential to help drive alignment.** This can include both efforts to control and mitigate the effects of pollution, and efforts to reduce the need for chemical inputs. Consider, for example, the following:

- Wetlands can play a significant role in pollution control and detoxification, and at the fifth session of UNEA the Executive Secretary of the Ramsar Convention said that *"we need to urgently step up the protection, sustainable management and restoration of wetlands as an essential element in integrated policies and actions for a pollution free planet"* and that *"the Ramsar Convention on Wetlands is a ready-made mechanism for this"*. The World Water Development Report 2018 summarises a range of uses of 'nature-based solutions for managing water quality, including reducing impacts from agriculture and industry.[111]

- Biodiversity and ecosystem services can reduce the need for costly and potentially harmful external inputs in agricultural systems. For example, less intensive approaches to agriculture, Integrated Pest Management, and promotion of landscapes which include networks of 'non-crop' habitats can provide favourable conditions for natural enemies of pest species, thereby reducing the need for pesticides.[112] FAO and the CBD Secretariat have provided technical guidance on using ecosystem services and biodiversity to minimized use of agrochemicals in agriculture production in East Africa, covering issues such as pest and disease control, weed management, soil fertility and pollination.[113]

- There are many examples of tree planting in cities and green belt management to reduce the effects of air pollution,[114] use of the common reed *Phragmites australis* to remove pollution (including organic pollution) from soil and water,[115] and of a wide range of grasses and other plants in 'phytoremediation' (including removal of explosives residue and heavy metals) to

[109] www.cms.int/sites/default/files/document/Guidelines to prevent the risk of poisoning to migratory birds.pdf
[110] See iwc.int/chemical-pollution
[111] unesdoc.unesco.org/ark:/48223/pf0000261424_eng (in particular chapter 3)
[112] See for example www.bioversityinternational.org/research-portfolio/agricultural-ecosystems/pests-and-diseases, royalsocietypublishing.org/doi/10.1098/rspb.2006.3530, www.panna.org/sites/default/files/Phasing-Out-HHPs-with-Agroecology.pdf and www.google.co.uk/books/edition/Biodiversity_and_Pest_Management_in_Agro/NgJ-DwAAQBAJ
[113] www.fao.org/3/i5603e/i5603e.pdf
[114] See for example www.fs.fed.us/psw/publications/mcpherson/psw_1998_mcpherson006_scott.pdf, www.icontrolpollution.com/articles/overview-on-attenuation-of-industrial-air-pollution-by-greenbelt-1-8.pdf, doi.org/10.1016/j.ufug.2004.09.001
[115] See for example doi.org/10.1007/s13201-013-0142-x

reclaim/restore contaminated lands.[116] There are also examples of removal of pharmaceuticals from wastewater in constructed wetlands.[117]

42. **Conventions in the two clusters also work together as part of the Green Customs Initiative**,[118] which aims to enhance the capacity of customs and other relevant border control officers to monitor and facilitate the legal trade and to detect and prevent illegal trade in environmentally-sensitive commodities covered by the trade-related MEAs. The partnership includes the BRS and Minamata conventions, CBD and CITES, and the Montreal Protocol, as well as a number of UN entities.

Box 5: Current alignment of policy responses with respect to pesticides

a) It is important to note that the majority of the alignment actions already identified in this section are relevant to pesticides in some way or another (for example the CMS Guidelines or the work of SAICM with multiple stakeholders). The following paragraphs only relate to those actions that are specific to addressing problems with pesticides and their impacts or are clear sub-components of actions already mentioned.

b) The International Code of Conduct on Pesticide Management[119] is a voluntary instrument developed jointly by FAO and WHO through their Joint Meeting on Pesticide Management.[120] The code of conduct and associated guidance and technical support from FAO underpins actions by SAICM and the Rotterdam Convention in particular in supporting action at the national level which is entirely consistent with the relevant provisions of the Basel and Stockholm conventions.[121] The Code of Conduct is also recognised by the CBD in decision XIII/15[122] which encourages Parties to "*develop and implement national and as appropriate regional pesticide risk reduction strategies …, for example, by adopting Integrated Pest Management practices and biocontrol, taking into account the International Code of Conduct on Pesticide Management*".

c) In the CMS Guidelines to Prevent the Risk of Poisoning to Migratory Birds[123] there are chapters on both rodenticides (chapter 1) and insecticides (chapter 2), as well as a chapter on use of poison baits for predator control (chapter 3). All are concerned with pesticides. The guidelines draw attention to the role of the Rotterdam Convention in supporting the reduction of risk of imports of products highly toxic to birds through: (a) influencing national government decisions on whether to allow import of pesticides; and (b) decision on whether to regulate additional pesticides.

d) The draft Global Action Plan on Highly Hazardous Pesticides[124] being developed by FAO, WHO and UNEP identifies its role with respect to SAICM and the relevant some of the chemicals and waste conventions (Rotterdam, Stockholm, Montreal). However, although it clearly indicates the importance of action with respect to degradation of biodiversity and ecosystems, it does not explicitly identify how it might relate to implementation of the cluster of biodiversity conventions.

[116] See for example www.sciencedirect.com/topics/earth-and-planetary-sciences/phytoremediation, academic.oup.com/labmed/article/27/1/36/2503490, doi.org/10.3389/fpls.2020.00359 and ipbes.net/sites/default/files/2018_ldr_full_report_book_v4_pages.pdf
[117] www.sciencedirect.com/science/article/abs/pii/S092585741730469X?via%3Dihub
[118] www.greencustoms.org/
[119] www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Code_ENG_2017updated.pdf
[120] See for example www.fao.org/publications/card/en/c/CB2892EN/
[121] www.brsmeas.org/Secretariat/Structure/BranchesFactSheets/FAORomeOffice/tabid/6185/language/en-GB/
[122] www.cbd.int/doc/decisions/cop-13/cop-13-dec-15-en.pdf
[123] www.cms.int/sites/default/files/document/Guidelines to prevent the risk of poisoning to migratory birds.pdf
[124] saicmknowledge.org/sites/default/files/meterial/Draft_Global_Action_Plan_HHP_23.10.2020.pdf

Key points relating to strengthening coordination and collaboration between clusters

Mechanisms for increasing alignment:

- Working to achieve common targets or objectives
- Alignment of indicators and potentially aspects of reporting
- Alignment of strategies and plans
- Liaison
- Active collaboration

Supporting activities:

- Development and promotion of guidelines
- Collaboration to identify and mitigate risk
- Sharing of information and experience
- Research in risks and impacts, including combined effects (multiple stressors)
- Understanding common interest

Drawing on previous experience:

- Learn lessons from what has worked and what has not
- Identifying opportunities of mutual interest for building collaboration
- Focus on practical action, and in particular action 'on the ground'

National approaches to implementation

43. **Efforts to strengthen coordination and collaboration between biodiversity and chemicals and waste clusters at the national level need to build on existing mechanisms**. Each of the MEAs discussed, as well as SAICM, encourage national approaches to implementation that vary from one instrument to another. However, as implementation is a national responsibility and the circumstances and priorities of countries vary, the ways in which the obligations entered into are addressed will also vary from one country to another. The extent to which MEAs and SAICM are implemented in a coherent manner – even within clusters – may therefore also vary from one country to another.

44. **It is therefore valuable to understand what mechanisms are being encouraged at the national level by each instrument, so as to better understand how the mechanisms might be adapted or influenced.** While any adjustment at the national level is clearly a decision for each country, this can be influenced by guidance provided by the MEA COPs or the ICCM, or by secretariats on their behalf. It can also benefit from guidance and support provided by other organizations, and examples of good practice from elsewhere.

45. **National biodiversity strategies and action plans (NBSAPs) are the main instrument for national implementation of the CBD**. In accordance with the Convention, Parties have to "*develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes*"[125] that reflect their national circumstances and are aimed at fulfilling the objectives of the CBD. Almost all Parties have developed at least one NBSAP (192 out of 196), although these documents vary considerably in terms of content, process through which they are developed, and level of adoption.[126]

46. **The CBD also requires Parties to integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies**.[127] Some Parties address this significantly in their NBSAPs which are adopted at the highest level of government, while others hardly address it at all. Acknowledging the importance of this integration to help fulfil the objectives of the CBD, since 2016 Parties have considered the issue of mainstreaming in much more detail. They are currently working to develop a long-term approach for mainstreaming biodiversity as requested by CBD COP in decision 14/3.[128,129]

47. **Guidance on approaches for the development and implementation of NBSAPs has been provided by the CBD COP and others**. This includes both general and more specific guidance. For example, COP decision IX/8[130] and decision X/2[131] include some key aspects relating to both content and process. In addition, a range of CBD decisions target specific elements relating to development and implementation of NBSAPs, including with respect to these being instruments for cross-sectoral cooperation. For example, COP has encouraged Parties to *"further strengthen cooperation and synergy among convention focal points and focal points for other relevant sectoral processes and partners at the national level so as to enhance capacity to implement the Strategic Plan for Biodiversity 2011-2020 and achieve the Aichi Biodiversity Targets, avoid duplication of activities and further*

[125] CBD, Article 6(a)
[126] See wedocs.unep.org/bitstream/handle/20.500.11822/25656/post2010_NBSAP_Assessment.pdf
[127] CBD, Article 6(b)
[128] www.cbd.int/doc/decisions/cop-14/cop-14-dec-03-en.pdf
[129] The approach will be considered by the CBD Subsidiary Body on Implementation at its 3rd meeting, during the session scheduled for January 2022. See CRP 16 (www.cbd.int/doc/c/aa97/8fa2/4d21550ccf7f670e3dc3f14a/sbi-03-crp-16-en.pdf)
[130] www.cbd.int/doc/decisions/cop-09/cop-09-dec-08-en.pdf
[131] www.cbd.int/doc/decisions/cop-10/cop-10-dec-02-en.pdf

enhance the effective use of resources, recognizing that national biodiversity strategies and action plans provide a useful tool for such collaboration" (decision XI/6[132] paragraph 10).

48. **Since 2010 there has been an expectation that NBSAPs should also include appropriate reference to actions to support the implementation of other biodiversity-related conventions**. When CBD Parties adopted the *Strategic Plan for Biodiversity 2011-2020*, other biodiversity-related conventions recognised that the strategic plan was also relevant to their interests, and as indicated earlier both the CMS and the Ramsar Convention went a step further and aligned their own strategic plans with the Aichi Biodiversity Targets. Linking implementation of the other biodiversity-related conventions through NBSAPs has also facilitated access to GEF funding for relevant projects for those countries that are GEF eligible.[133]

49. **National implementation of the other biodiversity-related conventions occurs using a variety of instruments and approaches, in addition to anything that is reflected within NBSAPs**. Each convention requires that domestic measures are adopted for its implementation, and in some cases particular approaches are directly mandated by the relevant MEA. In most cases guidance is provided in some form. However, each Party decides how it wants to incorporate its international obligations into national legislation and practice, based on national circumstances. For example:

- For CITES, each Party is required to regulate trade in specimens of species identified the appendices to the Convention.[134] All import, export, re-export and introduction relating to the list of species covered by the Convention has to be authorized through a licensing system. Each Party must designate one or more Management Authorities responsible for administering the licensing system, and one or more Scientific Authorities to advise on the effects of trade on the status of the species.[135] Guidance is provided, for example with respect to the CITES permit system.[136]

- For WHC, each Party is expected to adopt policies and put in place legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of cultural and natural heritage.[137] The World Heritage Committee has developed procedures and criteria for the inscription of properties on the World Heritage List and for response to threat as well as provision of international assistance. Procedures and criteria are included in the Convention's 'Operational Guidelines', which are intended *inter alia* to help support implementation at all levels,[138] and there are also resource manuals for managing natural and cultural heritage and managing disaster risks.[139]

- The Ramsar Convention places four main obligations on Parties, protection and listing of wetlands of international importance, wise use of wetlands in their territories, improved conservation and management of wetlands, and related international cooperation.[140] Although quite a lot of guidance is provided,[141] as with WHC there is no specific approach to

[132] www.cbd.int/doc/decisions/cop-11/cop-11-dec-06-en.pdf
[133] www.thegef.org/sites/default/files/publications/GEF-6-BD-strategy.pdf
[134] Convention text (cites.org/eng/disc/text.php)
[135] How CITES works (cites.org/eng/disc/how.php)
[136] CITES permit system (cites.org/eng/prog/Permit_system)
[137] Article 5 of the Convention (whc.unesco.org/archive/convention-en.pdf)
[138] Operational Guidelines for the Implementation of the World Heritage Convention (whc.unesco.org/en/guidelines)
[139] whc.unesco.org/en/resourcemanuals/
[140] Article 2 of the Convention (www.ramsar.org/sites/default/files/documents/library/scan_certified_e.pdf)
[141] See www.ramsar.org/resources/ramsar-sites-management-toolkit

national implementation required under the Convention although Parties are encouraged to establish National Ramsar Committees.

50. **For each of the biodiversity-related conventions there are identified national focal points, although their exact role may vary depending on the convention and on national circumstances**. However, in principle they are the individuals in each country who are involved in the meetings of the convention advisory and governance bodies, and the individuals who are also responsible at the national level both for communication with those responsible for implementation, and for organizing reports back to convention bodies on what has been done. For some, but not all conventions there is guidance provided for national focal points on the convention and their associated roles and responsibilities. For example:

- CMS publishes a *Manual for National Focal Points for CMS and its Instruments* which described the convention and how it works, including the role of national focal points.[142]
- The Ramsar Convention provides an information paper on *Administrative Authorities and National Focal Points* which identifies roles and responsibilities,[143] in addition to the guidelines and resources for implementation already referred to and the *Ramsar Convention Manual*.[144]
- CBD COP 8 adopted terms of reference for national focal points,[145] and in 2009 a training module on the *Role of the CBD National Focal Point*[146] was developed as part of other guidance and training materials provided on the Convention website.[147]

51. **Advice is also provided to national focal points of the biodiversity-related conventions on the ways in which they might collaborate with their counterparts for other conventions**. In part this is covered above, but other examples include:

- The CITES COP recommended[148] that Parties further strengthen the cooperation, coordination and synergies among the focal points of the biodiversity-related conventions and other partners at the national level to enhance coherent national-level implementation of the Convention, and this is also encouraged through the CITES *Strategic Vision*.[149]
- The Ramsar Convention COP encourages[150] its national focal points to coordinate with their national counterparts for other MEAs as well as with institutions and agencies working to address the 2030 Agenda for Sustainable Development Agenda and the SDGs. This is in the context of establishing or strengthening national mechanisms to enhance effective coordination between relevant national and subnational authorities, and to support the mainstreaming of wetland ecosystem functions and ecosystem services.

52. **Parties to the chemicals and waste conventions also adopt national legislation and other regulatory measures to implement and enforce the provisions of the respective conventions.** Some guidance is provided, but ultimately each Party decides on the most suitable approach to fulfil its international obligations. For example:

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[142] www.cms.int/sites/default/files/publication/manual_e(1).pdf
[143] www.ramsar.org/sites/default/files/documents/library/info2007-09-e.pdf
[144] www.ramsar.org/sites/default/files/documents/library/manual6-2013-e.pdf
[145] CBD COP Decision VIII/10 (www.cbd.int/doc/decisions/cop-08/cop-08-dec-10-en.pdf)
[146] www.cbd.int/doc/training/nbsap/a2-train-role-nfp-v2-2009-02-en.pdf
[147] www.cbd.int
[148] CITES resolution 16.4 (cites.org/sites/default/files/document/E-Res-16-04.pdf)
[149] CITES Strategic Vision (cites.org/eng/documents/Strategic_vision)
[150] Ramsar Convention resolution XIII.7 (www.ramsar.org/sites/default/files/documents/library/xiii.7_synergies_e.pdf)

- The Stockholm Convention requires Parties to take legal and administrative measures necessary to eliminate (or restrict) the production and use of listed chemicals, and their import and export. For these purposes, Parties are required to prepare national implementation plans (NIPs),[151] and it is expected that preparation and implementation of NIPs will be integrated into sustainable development strategies. The Convention also calls for a review and update of the NIPs on a periodic basis, for which the COP adopts guidance.[152]

- The Rotterdam Convention aims to "*promote shared responsibility and cooperative efforts among Parties in the international trade of certain 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*".[153] It has established a Prior Informed Consent (PIC) procedure, which is a mechanism for formally obtaining and disseminating the decisions of importing Parties as to whether they wish to receive future shipments of listed chemicals. Implementation of the Convention at the national level is done through national action plans, with a range of general guidance having been developed by the Secretariat.[154]

- The Basel Convention regulates transboundary movement of hazardous and other wastes so that these are minimized, and any such movement is done in a way that protects health and environment. Transboundary movements can only take place if certain conditions are met and if they are in accordance with certain procedures.[155] As a result, Parties can introduce a number of measures to implement the Convention, with certain flexibility in terms of which measures may be implemented by legislation or other policy instruments. The Secretariat has developed guidance for national authorities in developing the necessary instruments for implementation of the Convention, including for example a *Manual for the implementation of the Basel Convention* and the *Guide for the development of national legal frameworks to implement the Basel Convention*.[156]

- The Minamata Convention requires Parties that determine that artisanal and small scale gold mining and processing in their territory is more than insignificant, to develop and implement a national action plan.[157] Annex C to the Convention specifies the elements to be included in those plans, while recognising that each country might use a different approach for their development. The UNEP Global Mercury Partnership has developed guidance and a template for development of the national action plans.[158]

53. **SAICM aims *inter alia* to strengthen enforcement and encourage the implementation of national laws and regulations regarding chemicals management**, as a policy framework for the achievement of the sound management of chemicals throughout their life cycle. In this context, governments should develop national SAICM implementation plans, and regional implementation plans may also be developed.[159] It is expected that each government will establish arrangements for

[151] Stockholm Convention, Article 7
[152] For example, decision SC-1/12. Full list of guidance documents is available at chm.pops.int/tabid/7730. Further resources can be found at chm.pops.int/Implementation/NationalImplementationPlans/GuidanceArchive/tabid/2882
[153] Rotterdam Convention, Article 1
[154] www.pic.int/Implementation/ResourceKit/tabid/1064
[155] www.basel.int/Implementation/Controllingtransboundarymovements/Overview/tabid/4325
[156] www.basel.int/Implementation/Publications/GuidanceManuals
[157] Minamata Convention, Article 7
[158] web.unep.org/globalmercurypartnership/our-work/reducing-mercury-artisanal-and-small-scale-gold-mining-asgm/national-action-plans
[159] saicmknowledge.org/sites/default/files/publications/Overarching_Policy_Strategy.pdf

implementing the Strategic Approach on an inter-ministerial or inter-institutional basis, so that all concerned national departmental and stakeholder interests are represented and all relevant substantive areas are addressed.[160]

54. **Each of the conventions and SAICM also highlight the importance of greater coordination and integration among different processes and policy instruments**. For example, the COP to the Basel Convention adopted a strategic framework for its implementation for the period 2012–2021.[161] One of its objectives is to "*develop national and regional capacity, particularly through the Basel Convention regional and coordinating centres, by integrating waste management issues into national sustainable development strategies and plans for sustainable livelihood*". Meanwhile, central to SAICM's objectives in the Global Plan of Action would be "*measures to review national legislation in order to ratify and implement existing international agreements dealing with chemicals and hazardous wastes … to improve coordination and synergies with respect to chemical safety policy and activities at the national and international levels*". [162]

55. **National focal points are also appointed by countries to facilitate communication on the matters relating to each of the conventions in the chemicals and waste cluster, as well as SAICM**. Depending on the convention or process, some additional focal points can be established, such as at the regional level. For example:

- The Stockholm Convention requires each Party to designate a national focal point for the exchange of information relevant to: the reduction or elimination of the production, use and release of persistent organic pollutants; and alternatives to persistent organic pollutants, including information relating to their risks as well as to their economic and social costs.[163]
- The Basel Convention requires the designation of one or more competent authorities and one focal point. One of the competent authorities is to be responsible for receiving notifications in case of a state of transit.[164]
- Under SAICM, each government should designate a Strategic Approach national focal point, which should be a representative of the country's inter-ministerial or inter-institutional arrangements, where these exist.[165] SAICM also provides the possibility for regional focal points be nominated, and some regions have developed terms of reference for their focal points.[166]

56. **The ongoing 'synergies' process among the BRS conventions has not only led to changes at the global level but has also encouraged action at the national level**. Parties have been encouraged to establish national-level coordination mechanisms with a view to facilitating the exchange of information among relevant authorities responsible for the implementation and enforcement of the provisions of each of the BRS conventions. These mechanisms are intended, for example, to coordinate activities to implement the BRS conventions, "*in particular activities of the focal points and designated national authorities for the three conventions, the Strategic Approach to International*

[160] www.saicm.org/Portals/12/Documents/saicmtexts/New SAICM Text with ICCM resolutions_E.pdf
[161] www.basel.int/Implementation/StrategicFramework/Overview/tabid/3807
[162] www.saicm.org/Portals/12/Documents/saicmtexts/New SAICM Text with ICCM resolutions_E.pdf
[163] Stockholm Convention, Article 9
[164] Basel Convention, Article 5
[165] www.saicm.org/Portals/12/Documents/saicmtexts/New SAICM Text with ICCM resolutions_E.pdf
[166] www.saicm.org/Implementation/FocalPoints/tabid/5461

Chemicals Management and other relevant policy frameworks, as appropriate; and preparation for convention meetings".[167]

Box 6: National approaches to implementation relating to chemical pesticides

a) It is important to note that a number of the national approaches to implementation already covered in this section are relevant to pesticide management in some way or another (for example those of Rotterdam Convention). The following paragraphs only relate to those actions that are specific to addressing problems with pesticides and their impacts or are clear sub-components of actions already mentioned.

b) The fourth session of ICCM adopted a resolution that recognizes highly hazardous pesticides as an issue of international concern and calls for concerted action to address HHPs.[168,169] The concerted actions include capacity-building in regulatory control in order to support governments in: (a) strengthening pesticide registration schemes, risk assessment and review of registered pesticides; (b) strengthening the regulatory framework with regard to manufacturing, formulation, distribution, storage, sale, use and disposal of highly hazardous pesticides; (c) the development and adoption of effective enforcement mechanisms as part of the regulatory system for pesticides.

c) Both the FAO/WHO International Code of Conduct on Pesticide Management[170] and the CMS Guidelines to Prevent the Risk of Poisoning to Migratory Birds[171] make explicit reference to actions to be carried out at the national level with respect to pesticides. Both essentially provide advice to decision making processes at the national level, as well as to other stakeholders.

Key points relating to strengthening coordination and collaboration between clusters

Mechanisms for encouraging action:

- Decisions of governance bodies
- Guidance for implementation
- Guidance for national focal points
- Training materials
- Requirement to report on cooperation and collaboration
- NBSAPs, and other alignment of national action and strategies responding to MEAs
- Incentives from donors
- Building common (shared) legal and policy frameworks
- Capacity building in key areas

[167] Decisions BC-IX/10, RC-4/11 and SC-4/34 available at www.brsmeas.org/SynergiesProcess/Decisions/tabid/2616
[168] www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1606013_e.pdf
[169] www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1502177_SAICM-ICCM4-8-e.pdf
[170] www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Code_ENG_2017updated.pdf
[171] www.cms.int/sites/default/files/document/Guidelines to Prevent the Risk of Poisoning to Migratory Birds.pdf

The post-2020 and beyond 2020 strategy processes

57. **On both biodiversity and chemicals and waste there are ongoing processes which will influence priorities and action at all levels during the decade leading up to 2030**. Notably both processes refer directly to the impetus provided by the 2030 Agenda for Sustainable Development and the SDGs. It will be important to understand how these two ongoing processes would (or could be made to) influence efforts to strengthen coordination and cooperation between the biodiversity and chemicals and waste clusters. Unfortunately, both processes have been impacted by the COVID-19 pandemic, and in both cases processes that were meant to end in 2020 have been extended. However, these delays do mean that there are also opportunities to make additional inputs.

Post-2020 global biodiversity framework

58. **The post-2020 global biodiversity framework is being developed under the auspices of the CBD and is expected to be approved by COP15**. The process for development of the framework was set out in CBD COP decision 14/34,[172] which established an Open-ended Working Group on the Post-2020 Global Biodiversity Framework. The open-ended working group met in August 2019 in Nairobi and in February 2020 in Rome, however, while both meetings provided opportunity for sharing views, negotiation has not yet begun. Advice has also been provided by meetings of the CBD subsidiary bodies, and inputs have also been sought through submissions in response to formal notifications from the CBD Executive Secretary and compiled in consultation meetings.[173]

59. **The first draft of the post-2020 global biodiversity framework was made available in July 2021 and provided the basis for discussion at a virtual meeting of the open-ended working group in August and September**. The draft included a proposed 2030 action to "*reduce pollution from all sources to levels that are not harmful to biodiversity and ecosystem functions and human health, including by reducing nutrients lost to the environment by at least half, and pesticides by at least two thirds and eliminating the discharge of plastic waste*" (Target 7).[174] This and the other 20 proposed targets are based on a theory of change that *inter alia* aims to reduce the threats to biodiversity through transformative action.

60. .

61. **Negotiations on the post-2020 global biodiversity framework are also concerned with development of an associated monitoring framework and securing means of implementation**. Discussions in meetings of the open-ended working group and the CBD subsidiary bodies are also considering advice with respect to NBSAP revision, indicators and the monitoring framework, review and reporting, capacity-building, technical and scientific cooperation, and resource mobilization. In the final negotiations at CBD COP 15 is it likely that much of this will be addressed as a single package where nothing is agreed until everything is agreed.

62. **There is a widely recognised expectation that the post-2020 global biodiversity framework will be a universal framework for addressing biodiversity loss**, thereby underpinning delivery of the 2030 Agenda for Sustainable Development and the SDGs. As a result, representatives of the biodiversity-related conventions have actively sought to make input through various means, including through written submissions, interventions in CBD meetings and though two consultation meetings.[175] Also, in response to decisions of the Executive Committee and the Chief Executives Board, the UN system has

[172] www.cbd.int/doc/decisions/cop-14/cop-14-dec-34-en.pdf
[173] See www.cbd.int/conferences/post2020 for links to all relevant meetings and submissions except subsidiary bodies
[174] CBD/WG2020/3/3 www.cbd.int/doc/c/d605/21e2/2110159110d84290e1afca98/wg2020-03-03-en.pdf
[175] See www.cbd.int/conferences/post2020/brc-ws which provides a summary of meetings and links to the reports

developed a UN common approach to biodiversity which is intended to convene UN support in delivering the post-2020 global biodiversity framework.[176]

63. **The preparatory process for the post-2020 global biodiversity framework actively encourages participation by all stakeholders, and inputs have been made on behalf of the chemicals and waste cluster**. For example, in February 2020 UNEP made a submission on strengthening the links between the post-2020 global biodiversity framework with chemicals and waste[177] which set out why such links were important and how they might be achieved through alignment of frameworks and indicators. Submissions have also been made by organizations as diverse as the International Fertilizer Association, Pesticide Action Network International and the International Council for Mining and Minerals, and many Parties have stressed the need to focus on addressing the drivers of biodiversity loss.

64. **Parties to the CBD encourage their Executive Secretary to cooperate with other conventions and international organizations, and the importance of such cooperation is likely to be reflected in the post-2020 global biodiversity framework**. In the first draft made available in July 2021,[178] it is made clear that "*efficiency and effectiveness will be enhanced for all by integration with relevant multilateral environmental agreements and other relevant international processes, at the global, regional and national levels, including through the strengthening or establishment of cooperation mechanisms* " (paragraph 16). In addition, with respect to mechanisms for planning, monitoring, reporting and review, the draft proposes that "*these mechanisms are aligned with and, where appropriate … integrated with other processes and other relevant multilateral conventions including the 2030 Agenda for Sustainable Development and the Sustainable Development Goals".*

Strategic Approach and sound management of chemicals and waste beyond 2020

65. **The fourth session of the International Conference on Chemicals Management initiated an intersessional process to prepare recommendations regarding SAICM and the sound management of chemicals and waste beyond 2020**. The process for development of the recommendations was set out in ICCM decision IV/4,[179] and to date there have been three meetings of the intersessional process. A fourth meeting was due to take place in March 2020 but this has been postponed as a result of the COVID-19 situation, as has the fifth session of ICCM where a decision on SAICM and sound management of chemicals and waste beyond 2020 will be taken based on the recommendations of the intersessional process. At this stage, no limits have yet been placed on which types of chemicals or which types of waste will be included in the future framework - indeed, it is still being discussed how waste will be addressed as member states are known to have differing views.

66. **Documents prepared for the fourth meeting of the intersessional process include a compilation of recommendations and proposed targets**. The compilation of recommendations[180] is based on the deliberations of the third intersessional meeting and the proposed targets[181] have been prepared by a Technical Working Group on targets, indicators and milestones established by the intersessional process. While this is clearly still a draft with significant negotiation still to take place, the overall aim is to reduce the impact of chemicals and potentially also waste on human health and the environment,

[176] unsceb.org/un-common-approach-biodiversity
[177] s3.amazonaws.com/cbddocumentspublic-imagebucket-15w2zyxk3prl8/a426992b24d9968973e92a2878b5ad5f
[178] CBD/WG2020/3/3 www.cbd.int/doc/c/d605/21e2/2110159110d84290e1afca98/wg2020-03-03-en.pdf
[179] In the annex to www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1606013_e.pdf
[180] www.saicm.org/Portals/12/documents/meetings/IP4/Docs/SAICM_IP4_2_compilation-recommendations-SAICM-consideration-ICCM5.pdf
[181] www.saicm.org/Portals/12/documents/meetings/IP4/Docs/SAICM_IP4_3_Proposed-targets-TWG-SAICM-smcw-beyond-2020.pdf

which if achieved will reduce one of the most significant drivers of biodiversity loss. There is a proposed strategic objective that "*benefits to human health and the environment are maximised and risks are prevented, or where not feasible, minimised through safer alternatives, innovation, sustainable solutions and forward thinking*". A Virtual Working Group on Targets, Indicators and Milestones[182] reviewed the work of the Technical Expert Group, and expressed support for further discussion on two new proposed targets concerning biodiversity: "*by 20xx, pollution from chemicals and waste has been brought to levels that are not detrimental or harmful to ecosystem services and biodiversity*"; and "*all stakeholders identify and strengthen synergies and linkages between chemicals [and waste] and other environmental, health and societal priorities, such as climate change, biodiversity, human rights, universal health coverage and primary health care.*"

67. **Documents prepared for the fourth meeting of the intersessional process also include a report on linkages with other clusters related to chemicals and waste management and options to coordinate and cooperate on areas of common interest**. This document prepared by UNEP[183] identified a number of key options on how and on what topics opportunities exist to coordinate and cooperate between the chemicals and waste and biodiversity clusters, which included *inter alia* the alignment and strengthening of relevant targets and indicators by jointly identifying chemicals of concern and parameters and methodologies for monitoring. The document identified the following as key areas of common interest - plastic pollution, artisanal mining driven land degradation, water birds and lead poisoning, pesticide use and loss of pollinators, and nutrient management. Its options included further mobilizing the chemicals and waste conventions in achieving biodiversity goals, drawing heavily on the recommendations of an earlier study by IDDRI.[184] These issues are addressed further in the subsection below.

Potential for closer alignment of the two processes and their outcomes

68. **If those working on addressing biodiversity loss and those working on managing chemicals and waste were addressing aligned targets and using common indicators this will lead to strengthened coordination and collaboration between the clusters**. There is therefore value in considering how the post-2020 and beyond 2020 processes relate, and what might be done to increase alignment with respect to targets and indicators in particular with the ultimate aim of coordinated actions for implementation. The value of this sort of approach was stressed in the recently concluded UNEP-led report[185] on Making Peace with Nature which concluded that "*Earth's environmental emergencies … need to be addressed together to achieve sustainability … development of goals, targets, commitments and mechanisms … need to be aligned to become more synergistic and effective*".

69. **The intersessional process on the Strategic Approach and sound management of chemicals and waste beyond 2020 has directly aimed to link to and support the biodiversity process**, with a proposed target that "*by 20xx, pollution from chemicals and waste has been brought to levels that are not detrimental or harmful to ecosystem services and biodiversity.*" This text appears to have been adapted from Aichi Biodiversity Target 8, and is consistent with Target 7 in the draft post-2020 global biodiversity framework to "*reduce pollution from all sources to levels that are not harmful to biodiversity and ecosystem functions and human health, including by reducing nutrients lost to the*

[182] www.saicm.org/Portals/12/documents/meetings/VirtualWG/Target/VWG1_Co-facilitators-final-report_16FEB2021_FINAL.pdf
[183] www.saicm.org/Portals/12/documents/meetings/IP4/INF/SAICM_IP4_INF_3.pdf
[184] www.iddri.org/sites/default/files/PDF/Publications/Catalogue Iddri/Décryptage/201906-IB0719EN-chemicals CBD.pdf
[185] www.unep.org/resources/making-peace-nature

environment by at least half, and pesticides by at least two thirds and eliminating the discharge of plastic waste".

70. **Additionally, the Secretariats of the Basel, Rotterdam, Stockholm Conventions, and the Minamata Convention on Mercury have expressed their desire to contribute to the post-2020 biodiversity process** in the report published in May 2021 on interlinkages between the chemicals and waste MEAs and Biodiversity.[186] Two of the conclusions of this study are:

- As the international community finalizes and implements the post-2020 global biodiversity framework, collaboration between the BRS and Minamata conventions and the biodiversity-related conventions can provide ongoing refinements to the targets and indicators on pollution as they relate to mercury, POPs, pesticides and hazardous and other wastes.
- Whether or not a pollution target in the post-2020 global biodiversity framework is drafted to reflect priority pollutants/chemicals such as mercury and other heavy metals, POPs, pesticides, and wastes, the study provides baseline information about key interlinkages that can serve the BRS and Minamata conventions' governing bodies to consider the detailed contributions they could make in the future to the refinement and implementation of any pollution target in the post-2020 global biodiversity framework.

It is also worth noting that in a working document[187] prepared for the BRS convention's COPs in 2021, the draft decision "*invites Parties to take into account the objectives of the post-2020 global biodiversity framework in their actions to implement*" the BRS conventions, and "*requests the Secretariat to prepare … a report, including recommendations, on how the conventions could contribute to the post-2020 global biodiversity framework"* for consideration at the subsequent COPs.

71. **Whilst the proposed inclusion of targets relating to biodiversity is a new subject for the chemicals and waste community, the Strategic Plan for Biodiversity 2011-2020 did include Aichi Target 8 on pollution**. Unfortunately review of progress in achieving the target indicates that the target has not been achieved,[188] and only a small proportion of reporting Parties have national targets of similar scope and ambition to Aichi Target 8 and are on track to meet them. This situation could indicate that although countries have governmental mechanisms for addressing pollution and waste, such as under SAICM, the agencies responsible for NBSAP design and implementation were rarely making linkages with these processes. At least in theory there is opportunity for the SAICM beyond 2020 instrument to serve as a mechanism for achievement of relevant elements of target 7 of the draft post-2020 global biodiversity framework. Potentially the two processes could share a common target, or target elements, with recognition in the post-2020 global biodiversity framework that 'SAICM beyond 2020' would have a role in supporting achievement of its target 7.

Considerations on other areas of common interest

72. **Also relevant are the means of implementation and enabling conditions for implementation of future strategies, and these are also areas where coordination and collaboration could usefully be strengthened**. These are likely to be addressed to some extent explicitly in the adopted texts or in associated decisions, but also relate to areas of common working practice. These cover areas such as:

[186] mercuryconvention.org/biodiversity-report/
[187] Working documents UNEP/CHW.15/21, UNEP/FAO/RC/COP.10/17 and UNEP/POPS/COP.10/21 (www.brsmeas.org/2021COPs/MeetingDocuments/tabid/8810)
[188] www.cbd.int/gbo/gbo5/publication/gbo-5-en.pdf

- Means of implementation include mobilization of sufficient resources, capacity-building, technical and scientific cooperation including technology transfer, and knowledge generation, management and sharing.

- Enabling conditions include issues such as mainstreaming and whole of government approaches, active engagement of subnational governance bodies, equitable stakeholder engagement and the participation of indigenous peoples and local communities, gender-responsive approaches and intergenerational equity.

- Other related issues include communication, education, and public awareness.

73. **The Second Consultation Workshop of Biodiversity-related Conventions on the Post-2020 Global Biodiversity Framework made several recommendations broadly relevant to intergovernmental agreements and processes**. The report of the workshop[189] includes the following recommendations amongst others:

- Cooperation and collaboration is not only critical to the cost-effective implementation of MEAs [and related processes], it is also attractive to donors and is a key part of developing the integrated approaches … that may be necessary for implementation of the post-2020 global biodiversity framework. This includes identifying opportunities for collaboration in addressing all means of implementation such as capacity-building, resource mobilization and knowledge management, as well as communication.

- Implementation may be facilitated by the development of joint work programmes on specific topics across MEAs [and related processes], and by clearer understanding of who is doing what and with whom to promote and facilitate implementation.

- At the national level, close interaction amongst the national focal points for the different MEAs [and related processes] is essential for strengthening cooperation and collaboration in implementation. Conducting this in the context of the national mechanism that coordinates actions on the SDGs may provide additional benefits and may be an option for some.

74. **The UNEP assessment on interlinkages[190] and options to coordinate and cooperation on areas of common interest prepared for the SAICM intersessional process also identified options for strengthening coordination and collaboration**. These included the following:

- Collaborating in research and monitoring programmes of mutual interest, and in scientific and technical assessments
- Strengthening the science-policy interface, including by learning lessons from existing bodies such as IPCC and IPBES
- Enhancing national coordination, for example by engaging multisectoral cooperation in the context of meeting international obligations
- Promoting stakeholder engagement
- Exploring and strengthening resource mobilization for cross-thematic initiatives
- Enhancing multisectoral and multi-thematic partnerships

[189] www.cbd.int/doc/c/39f2/7257/df0b4d2bbdd7e383051e58f0/sbi-03-inf-29-en.pdf
[190] www.saicm.org/Portals/12/documents/meetings/IP4/INF/SAICM_IP4_INF_3.pdf

- Raising awareness and sharing information, and improving communication on interconnectedness of issues between clusters

75. **In the context of the ongoing post-2020 and beyond 2020 processes, IDDRI produced an issue brief on mobilizing the chemicals conventions to protect biodiversity**.[191] This focused specifically on the Stockholm and Rotterdam conventions, but its recommendations are more broadly applicable and were picked up in the recommendations of the UNEP assessment referred to above. These were:

- Expanding the list of pesticides included in the Stockholm and Rotterdam convention annexes
- Reinforcing institutional collaborations between biodiversity and chemicals conventions
- Enhancing non-state and multi-stakeholder cooperation between biodiversity and chemicals actors
- Building collaboration at the level of national instruments and actors

Box 7: Issues specific to chemical pesticides in the post-2020 processes

a) There is one explicit reference to pesticides in the first draft of the post-2020 global biodiversity framework[192] in draft target 7. It is proposed that this will be tracked with a headline indicator on "*pesticide use per area of cropland*" produced by FAO.[193,194]

- "*reduce pollution from all sources to levels that are not harmful to biodiversity and ecosystem functions and human health, including by reducing … pesticides by at least two thirds*"

b) The Technical Working Group on targets, indicators and milestones[195] established by the intersessional process on SAICM and the sound management of chemicals and waste beyond 2020 has proposed three targets that explicitly refer to pesticides and biodiversity, although the wording of other targets is also relevant to pesticide management, use and disposal.

- "*by 2030, pollution from chemicals (throughout their life cycle) and waste, including from excess pesticides and nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity*"
- "*by 2030, highly hazardous pesticides (as identified through the FAO code of conduct) are no longer in use or are used in ways that prevent or minimise exposure of humans, and the environment including non- targeted animals and plants throughout their life cycle*"
- "*governments implement policies and programmes to increase support to non-chemical alternatives including agroecology to replace the chemicals or groups of chemicals of global and regional concern including highly hazardous pesticides*"

Key points relating to strengthening coordination and collaboration between clusters

Opportunities identified:

- Common interest in reducing risk to biodiversity from chemicals and waste
- Potential for alignment of the two frameworks

[191] www.iddri.org/sites/default/files/PDF/Publications/Catalogue Iddri/Décryptage/201906-IB0719EN-chemicals CBD.pdf
[192] www.cbd.int/doc/c/914a/eca3/24ad42235033f031badf61b1/wg2020-03-03-en.pdf
[193] www.cbd.int/doc/c/d716/da69/5e81c8e0faca1db1dd145a59/wg2020-03-03-add1-en.pdf
[194] See www.fao.org/faostat/en/#data/EP/visualize
[195] www.saicm.org/Portals/12/documents/meetings/IP4/Docs/SAICM_IP4_3_Proposed-targets-TWG-SAICM-smcw-beyond-2020.pdf

- Contribution to discussions/negotiations in the 'other' forum
- Opportunities to use common indicators at global and national levels
- Opportunities for coordination and collaboration relating to means of implementation
- Common efforts in building stakeholder engagement
- Improving national coordination
- Further developing the science-policy interface
- Learning from experience in the other sector

Options for action

76. **Review of the previous sections in this report suggest a number of ways in which collaboration and cooperation between biodiversity and chemicals and waste clusters can be strengthened**, in particular with respect to implementation at the national level. The following options for action are based on the review we have undertaken as well as the recommendations that have been made by reviewers when commenting on the draft report. We set out first the key areas of mutual interest, and then the types of actions that could be considered. This is followed by consideration of next steps.

Key areas of mutual interest across clusters

77. Taking as read the desire to identify ways to work together more effectively and efficiently to reduce any negative impacts from chemicals and waste on biodiversity and ecosystem services, the following areas of key mutual interest have been identified. There is value in those working on both the chemicals and waste cluster and the biodiversity cluster to collaborate to achieve mutually beneficial outcomes in these areas. The numbering is for convenience in referencing and should not be taken to imply any priority order.

- Key area 1: ***Understanding the potential impacts*** of chemicals and waste on biodiversity and ecosystem services both individually and in combination, and hence the likely risk from exposure under differing circumstances, so informing decision making and priority setting.
- Key area 2: ***Understanding the different pathways*** through which chemicals and waste enter and move through the environment, as a basis for understanding risk and the actions that might be taken to avoid or mitigate that risk.
- Key area 3: Identifying and exploring opportunities for ***using biodiversity to reduce the impacts*** of chemical and waste pollution on human health and the environment, sharing and scaling up solutions as appropriate to circumstances.
- Key area 4: Understanding the social and financial ***implications of damage to biodiversity*** caused by chemicals and waste, including the subsequent implications for food and water security, as a basis for integration of concern and action across sectors and promoting action.
- Key area 5: Eliminating or at least ***reducing risks to biodiversity*** and ecosystem services resulting from chemicals and waste however they are introduced into the environment, including through contingency planning and addressing existing negative impacts.
- Key area 6: ***Achieving a more integrated approach*** towards sound chemicals and waste management with respect to potential impacts on biodiversity and ecosystem services, and the opportunity to mainstream those issues into national development plans and sectoral plans, and into relevant legislation.
- Key area 7: ***Promoting cooperative action*** to understand, prioritze and address issues of concern, including improved use of available human and financial resources, through more coordinated national frameworks, institutional mechanisms, planning and enforcement capacity.
- Key area 8: ***Improving delivery and impact*** of major international initiatives already agreed or under development that are relevant to reducing the impacts of chemicals and waste on biodiversity and ecosystem services.

Options to be considered

78. Action to be taken needs to be considered from three different perspectives relating to decision making and to encouraging and supporting any action that is taken. These 'levels of action' are to some extent arbitrary in nature, but they are useful in conceptualising the action that needs to be taken for each of the options for action described below. These levels of action are as follows:

- Level 1: Effective implementation will require actions to be taken at the ***national level***, although the ways in which any option is realised will vary with national circumstances and national institutional arrangements, as well as being dependent on available human and financial resources and the availability of relevant technologies. This would include legal and policy frameworks.

- Level 2: Implementation may also require actions to be taken by the ***governing bodies of MEAs and/or the SAICM process***, whether to encourage particular approaches through their decisions, to provide guidance (or ask their secretariats or others to do so), or through inviting other MEAs, intergovernmental processes or organizations to take action.

- Level 3: Significant contributions can also be made by ***organizations working at regional and/or global levels*** to provide support of some kind. They can be national organizations, international organizations, intergovernmental organizations, or UN entities, they can be governmental or non-governmental, or bringing the contributions of indigenous peoples and local communities. Their support can range from providing resources to providing guidance or examples of good practice elsewhere.

79. The following options for action have been identified, relevant across all the key areas of mutual interest. These options are not intended to be exclusive and are more likely to be implemented in combination. The options are likely to also apply differently to different people, and while some would be implemented by national focal points, for example, others would not. In many cases these options relate to activities already under way that could be learnt from and built upon. Each is presented as a summary here, and more detail is provided in Annex 3. The arrangement and numbering is for convenience and should not be taken to imply any priority order.

a) Options relating to strengthening relationships for national implementation

80. The following options relate to further strengthening the enabling environment and structures for the national focal points and national competent authorities from both clusters to work together more effectively on issues of mutual interest relating to implementation across the clusters. Note that these are summaries of the options for action, with further detail in Annex 3.

- Option 1: ***Ensure that opportunities are in place for national focal points of the different MEAs and processes to work together on issues of mutual interest***, sharing information and experience and building relationships. Their interaction should relate to both the governance and advisory processes of the different MEAs and processes where there are overlapping interests, and to implementation and as appropriate reporting. Interaction amongst national focal points also relates to most of the other options identified, as national focal points have a potential role to play in ensuring links to formal processes. This should include engaging the MEA focal points in work on implementing the 2030 Agenda for Sustainable Development, and where appropriate involving them in the work of international development cooperation.

- Option 2: ***Ensure that opportunities are in place for the relevant national competent authorities to work together on issues of common interest***, thinking in particular of those

organizations responsible for implementation measures related to the objectives of the MEAs and SAICM and the corresponding national legislation. These are not always the 'national focal points' as these are usually identified individuals, although the national focal points may be within relevant organizations. Again, this sort of interaction and inter-agency working would relate to most of the other options identified, including preparation for COP and ICCM meetings. It is also important for identifying and agreeing common priorities. One other aspect of this is promotion of inter-ministerial and inter-agency working groups to prepare for the different COP and working on follow up.

- Option 3: ***Build multi-stakeholder partnerships focused on addressing issues of particular concern that span the biodiversity and chemicals and waste clusters.*** These would include all relevant stakeholders ranging from government to civil society organizations, and from the private sector to academia. The purpose would be increase understanding and engagement on the issues being addressed and facilitate increased involvement in identifying and implementing solutions. These could be established by countries, and/or established internationally to support national action (for example along the lines of the three global multi-stakeholder partnerships[196] resulting from the work of the Global Plan of Action for the Protection of the Marine Environment from Land-based Activities).

b) Options relating to strengthening national planning

81. The following options relate to further strengthening the enabling environment and structures with respect to national planning with respect to implementation of the MEAs in the biodiversity and chemicals and waste clusters, and SAICM. Note that these are summaries of the options for action, with further detail in Annex 3.

- Option 4: ***Collaborate in the identification of risk, and contingency planning for recognising and mitigating the potential impacts of known risks***. This includes working collaboratively to assess hazards and risks (including safety testing) and understand potential impacts, planning action to be taken when those risks are realised, and sharing of information including on any deliberate or accidental release of hazardous or potentially hazardous materials (so that action can be taken). This would include the development and application of science-based procedures for hazard and risk assessment and management, sharing of data on chemicals and their impacts, and agreements on what needs notification, how and when. Some of this is already covered by international agreements.

- Option 5: ***Consider other actions that can be taken to increase integration in national planning and implementation with respect to the relevant MEAs and SAICM***. This would include consideration of how chemicals and waste is addressed in NBSAPs and other biodiversity-related planning, how biodiversity is addressed in national planning relating to chemicals and waste, and broader aspects of mainstreaming including national response to the 2030 Agenda for Sustainable Development and the SDGs as well as in national development plans and sector specific plans. Identifying and responding to common priorities in implementation is important for achieving coherence and facilitating assistance.

- Option 6: ***In the context of national planning and implementation, collaborate in improving governance arrangements including legislation and regulation***. This would include identification and development of more integrated approaches to addressing chemicals and

[196] See for example www.gpmarinelitter.org

waste in the context of biodiversity and ecosystem services, including identifying and controlling illegal activities. This would necessarily include cooperation across ministries that results from national efforts to address international obligations, including follow up to MEA governance body decisions, etc. Addressing harmful and illegal activities will also require engagement with other countries, including potentially within trade agreements. As with planning and implementation, identifying common priorities is key for achieving coherence and facilitating assistance. Guidance/assistance may be needed in some cases for developing more integrated approaches to planning, legislation and regulation.

c) Options for building collaboration in key areas underpinning implementation

82. The following options are concerned with enhancing cooperation and coordination with respect to the key areas necessary for achieving effective and efficient delivery of international obligations. All are issues addressed in intergovernmental processes, although cooperation in these areas has value beyond meeting international obligations. Note that these are summaries of the options for action, with further detail in Annex 3.

- Option 7: ***Increase coordination of capacity building, technical and scientific cooperation, and technology transfer*** relating to the intersections between the biodiversity and chemicals and waste clusters, including the identification and communication of capacity-building needs, and the development of capacity-building activities and programmes specific to this area of work. This includes better coordinated technical assistance activities, better use of resources, and identifying common priorities for capacity-building and technical assistance.

- Option 8: ***Initiate cross-cluster collaborative projects as a vehicle for increasingly working together to achieve common interests and raising resources***, in particular at the national level. As well as delivering project outcomes the aim would be that such projects would lead to further strengthening coordination and collaboration. Consider pilot projects, sharing of results and experiences, and scaling up identified solutions. Such projects could relate to any of the options identified. This could, for example include project proposals to the GEF for those countries that are eligible.

- Option 9: ***Promote cooperation and collaboration in monitoring and reporting, particularly with respect to development and use of indicators***. While these are activities carried out at the national level, they are also influenced by the requirements of internationally defined processes (for example provision of data, indicators and/or reports). Increased sharing of data and information, and the use of common indicators will help in report and communication, and in building common understanding. Effective monitoring will also provide a basis for identifying potential problems and impacts, and tracking and reporting on them. Reporting on cross-cluster issues in Voluntary National Reports (VNR) to the High-level Political Forum (HLPF) on Sustainable Development will also help raise the profile of such issues both nationally and internationally and could help drive cooperation. This would be facilitated if intergovernmental entities also highlighted the interconnected nature of the issues and benefits of cooperation in their own reports.

- Option 10: ***Promote cooperation and collaboration in communication, education and awareness*** relating to the interconnections between biodiversity and chemicals and waste, the links to the health agenda, and 'downstream' impacts on other sectors. This would include both broad 'public' approaches and raising political visibility. Raised profile of the issue at the national, regional and international levels can result in increased resources to support

chemicals and waste management programmes, and also encourage increase engagement of the academic community. Common messaging can be more effective and more cost-effective.

d) Options relating to developing and using the necessary knowledge base

83. The following options concern sharing knowledge, and further building the knowledge base necessary for underpinning action for addressing the two clusters in a coherent manner. Note that these are summaries of the options for action, with further detail in Annex 3.

- Option 11: ***Facilitate sharing of guidance materials, experience and information relevant to the interface between the two clusters***, both nationally and internationally, in order to increase access to the best available knowledge and good practice. This would include sharing of knowledge relevant to risks, and their management and control. This could include building or extending networks of contacts, online knowledge exchange platforms, and/or communities of practice where practitioners can share experience relating to the hazards and risks and potential impacts of chemicals and waste on biodiversity and how to address them.[197] This might also relate to national implementation of clearing-house mechanisms such as those under the CBD[198] or building on the multi-stakeholder approach of the BRS conventions[199] and others.[200]

- Option 12: ***Collaborate in the development of an effective science-policy interface at both national and international levels*** that facilitates the coming together of scientists, other knowledge holders and policy makers with experience and interest in each of the clusters, so as to help inform understanding of risk and potential impact and to help identify and prioritize necessary actions (including monitoring and evaluation). This might include using existing processes, building on existing processes, or establishing new processes. For example, at the international level consideration might be given to the role of IPBES with respect to further assessment of pollution as a driver of biodiversity loss, and how IPBES might relate to any new platform or panel established independently or under SAICM.

- Option 13: ***Promote and support monitoring and research in key areas identified as a priority, and facilitate wide access to the results***, working together to engage the academic community. This should particularly focus on generation of data, information and knowledge relating to risk and risk management relating to impacts on biodiversity and ecosystem services. This would respond to needs address by any science-policy interface, and address issues such as those identified as gaps in recent international assessments, including the UNEP assessment paper on interlinkages[201] with other clusters related to chemicals and waste management and the 'key insights' document produced by the BRS and Minamata conventions.[202]

[197] A potential model could be the SAICM Community of Practice on Chemicals and the SDGs organized with the University of Cape Town (chemicalswithoutconcern.org/sites/default/files/flyerCoP_CWC_SDG_0.pdf), but there are others including the NBSAP Forum (www.nbsapforum.net) and BESNet (www.besnet.world).
[198] See www.cbd.int/chm and chm.cbd.int
[199] www.brsmeas.org/Implementation/KnowledgeManagementandOutreach/Clearinghousemechanism
[200] See for example the IOMC Toolbox (https://iomctoolbox.org/)
[201] www.saicm.org/Portals/12/documents/meetings/IP4/INF/SAICM_IP4_INF_3.pdf
[202] wedocs.unep.org/bitstream/handle/20.500.11822/36088/BIKI.pdf

e) Options for advancing key international initiatives

84. The following options are concerned with enhancing efforts to integrate planning and implementation, considering issues across sectors and organizations. Again, all are issues addressed in intergovernmental processes, although cooperation in these areas has value beyond meeting international obligations. Note that these are summaries of the options for action, with further detail in Annex 3.

- Option 14: ***Consider mutually consistent targets, actions and intentions that could usefully be embedded in the post-2020 global biodiversity framework and/or SAICM and sound management of chemicals and waste beyond 2020***, thinking both of their development and subsequent implementation at national and international levels. Close alignment will facilitate future strengthening of coordination and collaboration across the clusters. This might include using their adoption at CBD COP 15 and ICCM 5 as opportunities for renewed commitments at the intergovernmental level, encouraging renewed national effort and national planning as well as actions by all relevant stakeholders.

- Option 15: ***Explore need and opportunities to expand the list of chemicals included in the Stockholm and Rotterdam convention annexes***, for example to include more pesticides as suggested by IDDRI.[203] Also consider further the issues of concern identified by SAICM[204] and in the UNEP Global Chemical Outlook,[205] and the actions that need to be taken both to respond to them and to identify new issues of concern. This could be explored collaboratively by those working on both biodiversity and chemicals and waste, drawing on research and biodiversity risk assessment and then using the existing tools and processes to work towards increased environmental protection. Improvements in implementation are then at least in part addressed through other options.

- Option 16: ***Encourage international finance institutions and programmes to support projects and programmes that address environmental issues in an integrated manner***. For example, participants in the meeting of the Global Environment Facility (GEF) Council held in June 2020 stressed the importance of collaboration and the need for synergistic action, and agreed support for projects addressing the interlinked challenges of climate change, biodiversity loss, land degradation, ocean pollution and depletion, and dangerous chemicals.[206]

- Option 17: ***Identify ways to collaborate in the context of a 'One Health' approach, using this as a basis for driving and justifying action***. The 'One Health' approach recognises the interaction between disease – including poisoning – in wildlife, human and domestic animals, and the urgent need to ensure that policy responses are better integrated for more effective outcomes. See for example Ramsar Convention Resolution XI.12 on wetlands and health[207] and CMS Resolution 11.15 on preventing poisoning of migratory birds.[208]

- Option 18: ***Promote regional cooperation as a basis for strengthening cooperation and collaboration in addressing impacts of chemicals and waste on biodiversity***. Such regional approaches will help in building capacity and facilitating technical and scientific cooperation

[203] www.iddri.org/sites/default/files/PDF/Publications/Catalogue Iddri/Décryptage/201906-IB0719EN-chemicals CBD.pdf
[204] www.saicm.org/Implementation/EmergingPolicyIssues
[205] gpcpe.org/wp-content/uploads/2019/03/GCOII_synth.pdf
[206] enb.iisd.org/sites/default/files/2021-06/gef_council60_summary_0.pdf
[207] www.ramsar.org/sites/default/files/documents/pdf/cop11/res/cop11-res12-e.pdf
[208] www.cms.int/sites/default/files/document/mos2_inf11_cms_res_11_15_e_0.pdf

however they may also have an effect in increasing political visibility of the issues. Any new initiatives should build on existing initiatives wherever possible and draw on existing experience.

- Option 19: ***Consider further the role of UNEA in encouraging and facilitating strengthening of coordination and collaboration between the clusters***, including keeping under review the outcomes of the workshop and catalysing further action at global, regional and national levels.

Chemical pesticides case study: Options for action

With respect to chemical pesticides, the options for action are essentially the same as those already identified above. However, there may be opportunities to develop specific actions focused on pesticides and their impacts, given the specific uses to which they are put and the relatively clear stakeholder groups. Such actions might be focused on addressing specific concerns (such as the impact of noenicitinoids on bees), exploring alternatives (such as the potential role of agroecology in reducing the need for pesticides), or increasing understanding of the issues.

The IPBES assessment report on pollinators, pollination, and food production[209] means that this issue is very much on both national and international agendas and this could usefully provide motivation for developing pilot work where it is not already under way, and may increase opportunities for funding. The IPBES assessment has led to increase interest amongst governments, as evidenced by establishment of the Coalition of the Willing on Pollinators.[210]

Next steps in using the study report and expert workshop outputs

85. The purpose of both the study and the associated expert workshop is to encourage action in strengthening coordination and collaboration between the biodiversity and chemicals and waste clusters. It is therefore essential to consider follow up in using these project outputs. The following types of activities need careful consideration:

- Next step 1: Given the ***special case of post-2020 and beyond 2020 strategies***, (the post-2020 global biodiversity framework being negotiated by Parties to the CBD, and the process for SAICM and sound management of chemicals and waste beyond 2020), it will be important to consider communication of the results of the study and expert workshop into both processes. This could be through direct communication with the co-chairs of the processes and the relevant secretariats, through appropriate briefings and briefing documents, and/or potentially also through direct communication with negotiators in an appropriate manner. However, it is important to recognise that these two processes and their outcomes are of interest to all MEAs in the biodiversity and chemicals and waste clusters, and not only to CBD and SAICM.

- Next step 2: It will be important to communicate with ***all relevant secretariats*** including those who had representatives in the expert workshop and those who did not. This includes both communication of the outcomes of the study and expert workshop, and discussion of next steps. Within the biodiversity related conventions, it might also be valuable to discuss this jointly at a meeting of the BLG. In the context of such discussions it would useful to understand what is wanted, so that a roadmap could be developed.

[209] www.ipbes.net/assessment-reports/pollinators
[210] www.promotepollinators.org

- Next step 3: It would be valuable to communicate the results of the study and expert workshop to ***MEA governance and advisory body meetings, ICCM and UNEA*** in an appropriate manner so as to draw attention to the issues addressed, to the importance of the issues, and to the possible options for action. In the first instance it would be valuable to discuss this with secretariats to identify the most effective approach, as indicated above. Some form of summary document might be valuable, as well as the full study report and expert workshop report. It will also be important to consider what sort of response is expected or needed from these bodies.

- Next step 3: Given the perceived importance of action at the national level it will be particularly important to communicate outcomes of the study and expert workshop to ***all national focal points of MEAs and SAICM*** in an appropriate manner. In the first instance it would be valuable to discuss this with secretariats to identify the most effective approach, as indicated above. Some form of summary document might be valuable, as well as the full study report and expert workshop report.

- Next step 4: Depending on the outcome of follow up discussions with secretariats and others, it may become necessary to prepare other documents including ***concept notes for follow up activities, guidance for national focal points, and other materials***. It is important to explore what further support might be needed for national focal points in particular, even if only increasing access to materials already available. Advice on this could well come out of the workshop, and also through dialogue with secretariats as discussed above.

- Next step 5: It is expected that development of next steps will include ***identification of further work for UNEP and other UN entities*** arising from the outcomes of the study and expert workshop, although it would be premature to define this before the workshop has taken place. In addition to consideration of UNEP's future work on cooperation and synergies, during the workshop consideration might also be given to the potential role of other UN entities in the context of the UN Common Approach,[211] including the UN Environment Management Group[212] (which is concerned with finding ways of engaging the collective capacity of the UN in coherent management responses to issues on the international environmental agenda that warrant cooperation) and the UN Sustainable Development Group[213] (which is charged with delivering a coherent and well-coordinated UN development system capable of delivering integrated support across the SDGs). Consideration should also be given to the role of UNEA.

86. For enacting the possible next steps identified above, it is important to keep in mind both the potential value of workshop participants as communicators of the outcomes of the study and expert workshop, and the potential role of the Nordic Council of Ministers and Nordic Countries in further promoting the work that they have sponsored, and in encouraging follow up.

[211] unsceb.org/un-common-approach-biodiversity
[212] See unemg.org
[213] See unsdg.un.org

> "***The multiple interactions between environmental problems mean that uncoordinated single-issue solutions are inefficient and will fail***. *An integrated approach that addresses the underlying root causes of interlinked environmental problems and pays attention to unintended consequences of actions is both more cost-effective and more likely to be successful than treating the issues as if they were independent of one another. It further allows synergies to be identified and exploited, while steering away from the worst trade-offs.*"
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> Making Peace with Nature:[214]
> A scientific blueprint to tackle the climate biodiversity and pollution emergencies

[214] www.unep.org/resources/making-peace-nature