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**Conference of the Parties to the
Minamata Convention on Mercury
Third meeting**

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Item 5 (b) of the provisional agenda*

**Matters for consideration or action by the
Conference of the Parties: releases of mercury**

**Report by the group of technical experts on guidance in relation
to mercury releases**

Note by the secretariat

1. Article 9 of the Minamata Convention on Mercury concerns controlling and, where feasible, reducing releases of mercury and mercury compounds to land and water from the relevant point sources not addressed in other provisions of the Convention. Subparagraph 2 (b) of that article defines “relevant source” as “any significant anthropogenic point source of release as identified by a party that is not addressed in other provisions of this Convention”. Paragraph 3 of the same article provides that “each party shall, no later than three years after the date of entry into force of the Convention for it and on a regular basis thereafter, identify the relevant point source categories”. Paragraph 6 provides that “each party shall establish, as soon as practicable and no later than five years after the date of entry into force of the Convention for it, and maintain thereafter, an inventory of releases from relevant sources”. Paragraph 7 provides that “the Conference of the Parties shall, as soon as practicable, adopt guidance on best available techniques and on best environmental practices...and on the methodology for preparing inventories of releases”.

2. The Conference of the Parties, in its decision MC-2/3, established a group of technical experts to develop draft guidance on methodologies for the preparation of inventories for a list of potentially relevant point source categories, working primarily through electronic means. It requested the secretariat first to invite parties, signatories and other stakeholders to identify possible point source categories of releases to be included in the list and then to compile that information in a report and share it with the group. The group was requested to present the report, including a list of any significant anthropogenic point source of release categories not addressed in provisions of the Convention other than article 9, along with a suggested road map and structure for the development of draft guidance on methodologies for preparing inventories, for possible adoption by the Conference of the Parties at its third meeting. The group was also requested to develop draft guidance on standardized and known methodologies for preparing inventories for the sources in that list for possible adoption by the Conference of the Parties at its fourth meeting. The Conference of the Parties decided that at its third meeting it would again consider the composition of the expert group and the need for the group to meet face to face.

3. The group comprises 22 members, nominated through the Bureau representatives, as follows: from the African region, Eswatini, Gabon, Nigeria, Rwanda and Zambia; from the Asia-Pacific region, China, Indonesia, Iran (Islamic Republic of) (2 members) and Japan; from the Eastern European region, the European Commission and the European Environment Agency; from the

* UNEP/MC/COP.3/1.

Latin America and Caribbean region, Argentina, Costa Rica, Guyana (2 members) and Uruguay; and from the region of Western Europe and other States, Canada, Germany, Norway, Sweden and the United States of America.

4. Information on possible point source categories of releases was received from Argentina, Canada, Costa Rica, the European Union, Mauritius, Montenegro, Norway, the Secretariat of the Barcelona Convention and the Natural Resources Defense Council.

5. The group held two teleconferences convened by the secretariat and developed a draft report, which was posted on the website of the Minamata Convention on 15 May 2019, for comment by 15 June 2019. Comments were received from Canada, Chile, Costa Rica, the European Union, Japan, Norway, Thailand, the United States of America and the Natural Resources Defense Council, some of which were submitted in the name of experts. The group then held another two teleconferences, one in June to review the comments and one in July to discuss changes to the draft report. Thereafter, the report was finalized by the secretariat on the basis of electronic exchanges within the group.

6. A draft decision on mercury releases based on the work of the group is set out in annex I to the present note. The report of the group is contained in annex II.

Suggested action by the Conference of the Parties

7. The Conference of the Parties may wish to review the progress achieved by the group during the intersessional period, as presented in its report, noting that the group could not reach consensus on a number of issues, including those described in paragraphs 8, 16, 18 and 22 of the report and paragraph 2 of the appendix thereto, and to consider the draft decision set out in annex I to the present note.

Annex I

Draft decision MC-3/[--]: Mercury releases

The Conference of the Parties,

Welcoming the report of the group of technical experts on guidance in relation to mercury releases established pursuant to decision MC-2/3,

Recognizing that the group was requested in decision MC-2/3 to develop draft guidance on standardized and known methodologies for preparing inventories for identified relevant point sources for possible adoption by the Conference of the Parties at its fourth meeting,

Recognizing also that the Conference of the Parties decided in decision MC-2/3 to consider again, at its third meeting, the composition of the expert group and the need for the group to meet face to face,

1. *Invites* parties to confirm the current members of the group, nominate new members or replace members, as appropriate, through the Bureau representatives;
2. *Requests* the group to continue to work electronically, in line with the road map set out in annex II to document UNEP/MC/COP.3/6, to produce a report including draft guidance on the methodology for preparing inventories of releases, the proposed categories of point sources of releases and a road map for the development of guidance on best available techniques and best environmental practices;
3. *Requests* the secretariat to continue to support the work of the group.

Annex II

Report on the development of guidance on methodologies for inventories of mercury releases to land and water under article 9 of the Convention

I. Introduction

1. The Conference of the Parties to the Minamata Convention on Mercury, in its decision MC-2/3 on releases to land and water, established a group of technical experts to develop draft guidance on methodologies for the preparation of inventories for a list of potentially relevant point source categories and requested the group to prepare a report including:

(a) A list of any significant anthropogenic point source of release categories not addressed in provisions of the Convention other than article 9;

(b) A suggested road map and structure for the development of draft guidance on methodologies for preparing related inventories.

2. In the same decision, the secretariat was requested to invite parties, signatories and other stakeholders to identify categories for possible inclusion in the list of potentially relevant point source categories. The secretariat was requested to compile the submissions into a report that included the relevant point source categories identified in, inter alia, the United Nations Environment Programme Toolkit for Identification and Quantification of Mercury Releases (mercury inventory toolkit), the Minamata initial assessments and the Global Mercury Assessment 2018, and to share the report with the group of experts.

3. Submissions were compiled and circulated to the group of technical experts. The group reviewed the submissions during two teleconferences convened by the secretariat for preparation of the draft report. That report was posted on the Convention website for comment. During a further two teleconferences, the group reviewed the comments received, and its members and observers provided written comments on a revised draft prepared by the secretariat. The present report was developed by the secretariat on the basis of the electronic exchanges within the group.

II. Definition of key terms

4. Subparagraph 2 (b) of article 9 of the Convention defines “relevant source” as “any significant anthropogenic point source of release as identified by a party that is not addressed in other provisions of this Convention”. The group considers that a common understanding is needed of what is meant by key terms such as “point source”, “significant” and “addressed”.

A. Point source

5. Article 9 of the Convention provides no definition of “point source”. Article 8 addresses emissions of mercury and mercury compounds to the air from point sources, and annex D provides a list of facilities that are regarded as point sources of emission.

6. Some parties have included a definition of the term in their environmental laws and regulations. Under the Clean Water Act of the United States of America, the term “point source” means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal-feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. The term does not include agricultural stormwater discharges and return flows from irrigated agriculture.¹ The European Environment Agency defines a point source as a stationary location or fixed facility from which pollutants are discharged, or any single identifiable source of pollution, e.g., a pipe, ditch, ship, ore pit or factory smokestack.² Experts have shared similar definitions used in several other jurisdictions.

¹ Available at www.epa.gov/cwa-404/clean-water-act-section-502-general-definitions.

² Available at www.eea.europa.eu/help/glossary/eea-glossary/point-source.

B. Significant

7. Parties are to determine which anthropogenic point sources of release to land or water within their territory are significant. In doing so, they may take into account the quantity of the releases, their location, the environmental conditions and exposure pathways and other factors of national concern.

C. Addressed in other provisions of the Convention

8. The definition of “relevant source” in article 9 refers to significant anthropogenic point sources of releases to land and water that are “not addressed in other provisions of this Convention”. In order to enable a common understanding of “relevant sources”, the present section of the report provides information on the extent to which other articles of the Convention address sources of releases. Some experts were of the view that, as article 9 sets out two obligations (release control, in paragraph 4, and the establishment and maintenance of an inventory, in paragraph 6), both phrased as “Parties shall” and given equal importance in the article, parties might wish to consider which other provisions of the Convention address both obligations. According to those experts, if an article addressed release control but not inventory development, then article 9 should require inventory development only. Other experts, however, were primarily concerned with controlling releases, and did not consider the requirement for an inventory to be relevant in determining whether a release was “addressed” by that article.

1. Article 3. Mercury supply sources and trade

9. Pursuant to paragraph 4 of article 3, existing primary mercury mines are allowed for a period of up to 15 years only, after the date of entry into force of the Convention for the party concerned. Releases to land and water during that period from primary mercury mines are not addressed in the article. Article 11 provides for management requirements for mercury waste from primary mercury mining.

2. Article 4. Mercury-added products

10. Article 4 prohibits the manufacture of products listed in part I of annex A to the Convention after the phase-out date of 2020, which can be extended if a party has a registered exemption pursuant to article 6. If a product is listed in annex A and is subject to a complete manufacturing prohibition, releases to land and water from its manufacturing are considered to be addressed under article 4 after the phase-out date as specified in annex A or as extended for individual parties. Releases to land and water from the manufacturing of products not listed in annex A, however, including products that contain mercury below the concentration limits listed in annex A, are not addressed by article 4.

11. For dental amalgam, in part II of annex A, a party has a choice of nine measures to promote best environmental practices to reduce releases. As such, mercury releases from dental practices are addressed for parties that choose to promote best environmental practices, but not for those that do not. It is also important to note that releases from the use of products that contain mercury probably result from diffuse sources, which are beyond the scope of article 9.

3. Article 5. Manufacturing processes in which mercury or mercury compounds are used

12. Subparagraph 5 (a) of article 5 provides that each party with one or more facilities that use mercury or mercury compounds in the manufacturing processes listed in annex B shall take measures to address emissions and releases of mercury and mercury compounds. Releases from such facilities are therefore addressed by article 5. A release inventory, however, is not explicitly mentioned in article 5. Releases from manufacturing processes not listed in annex B are not addressed by article 5.

4. Article 7. Artisanal and small-scale gold mining

13. Article 7 provides that each party with artisanal and small-scale gold mining in its territory shall take steps to reduce, and where feasible, eliminate the use of mercury and mercury compounds and the emissions and releases to the environment of mercury from such mining and processing. In addition, parties that determine that artisanal and small-scale gold mining is more than insignificant in their territory shall prepare a national action plan, which, in accordance with subparagraph 1 (e) of annex C, must include strategies for promoting the reduction of emissions and releases. National action plan guidance includes measures to reduce releases from artisanal and small-scale gold mining activities. Releases from artisanal and small-scale gold mining are therefore addressed by article 7. Moreover, such releases largely come from diffuse sources, which are beyond the scope of article 9. A release inventory is not mentioned explicitly in article 7, but as part of the preparation of a national

action plan, a party must provide baseline estimates of the amount of mercury used and the artisanal and small-scale gold mining practices employed, which is a form of inventory from a large number of sources.

5. **Article 8. Emissions**

14. Article 8 provides that parties shall require the use of best available techniques and best environmental practices to control and, where feasible, reduce emissions from new sources of emission to air. In relation to existing sources, it also provides that parties shall take measures that may include a quantified goal for emission control and, where feasible, reduction; emission limit values; and the use of best available techniques and best environmental practices. Article 8 does not deal with releases of mercury to land and water. The guidance on best available techniques and best environmental practices for emissions to air takes into account the need to minimize cross-media effects, such as releases to land, water and waste. The guidelines on air emissions, however, do not address how to reduce releases to land and water, nor do they present guidance on technologies for best available techniques and best environmental practices in relation to releases. Mercury releases to land and water from the point source categories listed in annex D are thus not addressed in article 8. Parties, therefore, may already have implemented technologies to reduce releases when installing abatement technologies for mercury to air. There is an inventory obligation for emissions, but a release inventory is not mentioned explicitly in article 8.

6. **Article 10. Environmentally sound interim storage of mercury, other than waste mercury**

15. Article 10 provides that parties shall take measures to ensure that the interim storage of mercury and mercury compounds other than waste is undertaken in an environmentally sound manner. Releases of mercury and mercury compounds from interim storage are therefore addressed by this article. The guidelines on the environmentally sound interim storage of mercury other than waste mercury include measures to prevent releases. It should be noted that releases from interim storage may result from diffuse sources, which are beyond the scope of article 9.

7. **Article 11. Mercury wastes**

16. The relationship between article 9 and article 11 is complicated. Article 11 provides that parties shall take appropriate measures to ensure that mercury waste is managed in an environmentally sound manner, taking into account the guidelines developed under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. Under that convention, mercury wastes are defined as substances or objects consisting of, containing or contaminated with mercury or mercury compounds that are disposed of or are intended or required to be disposed of by the provisions of national law. Article 11 of the Minamata Convention incorporates relevant definitions from the Basel Convention. The release to land and water of substances or objects consisting of, containing or contaminated with mercury is regarded as “disposal” under the Basel Convention.³ The act of disposal defines the material as waste under the Basel Convention. Article 11 of the Minamata Convention therefore addresses releases of mercury to land and water that arise from the generation and management of mercury waste from a broad range of types of facility and activities. Different views have been expressed as to the relationship between the availability of guidance and whether relevant releases could be considered to have been addressed. Some experts believed that environmentally sound management implied that releases were controlled, irrespective of the guidance available; in their view, any other interpretation would weaken the legal concept of environmentally sound management and the Minamata Convention as a whole. Other experts believed that the decision as to whether relevant releases had been addressed depended on whether they had actually been addressed in some meaningful way.

17. The scope of article 11, including lists of types of waste and thresholds for defining mercury waste, was recently discussed by the group of technical experts on mercury waste thresholds established in decision MC-2/2, which also submitted a report to the third meeting of the Conference of the Parties (UNEP/MC/COP.3/7). In its deliberations, the group considered whether wastewater should be among the wastes addressed under article 11. Two main factors were at play in the discussion. First, although some Governments regulate wastewater under a dual waste/water quality regulatory approach, other Governments control wastewater only within water quality programmes, which may be more closely aligned with article 9. Second, if wastewater is controlled solely under article 11, the development of guidelines on best control practices will be part of the process to update

³ Annex IV of the Basel Convention: Disposal operations D1 (deposit into or onto land, e.g., landfill) and D6 (release into water body except seas/oceans), etc.

the Basel Convention technical guidelines.⁴ If, on the other hand, wastewater is regulated under article 9, measures will be taken pursuant to paragraph 5 of article 9.

18. The present report makes no recommendation about which article should be used to control wastewater releases, noting that the group of technical experts on mercury waste thresholds is mandated to consider the definition of mercury waste. Nevertheless, the present group has identified three options for the consideration of the Conference of the Parties:

(a) To regulate wastewater under article 9, which is consistent with the manner in which many national programmes are organized;

(b) To regulate wastewater under article 11, which is consistent with the definitions under the Basel Convention, and to seek improvements to the Basel Convention guidelines for wastewater management as part of the ongoing updating of those guidelines; or

(c) To adopt a hybrid approach, whereby parties may choose to control wastewater under either article 9 or article 11 according to their national legislation.

19. Waste rock, overburden and tailings from mining other than primary mercury mining are not covered by article 11 unless they contain mercury or mercury compounds above the thresholds defined by the Conference of the Parties to the Minamata Convention. As a result, releases to land and water from such wastes are not currently addressed by article 11.⁵ The group of technical experts on mercury waste thresholds has recommended an approach for setting thresholds applicable to tailings from these mining activities. If such thresholds are established, tailings that meet or exceed such thresholds will be covered by article 11.

8. Article 12. Contaminated sites

20. Article 12 provides that parties shall endeavour to develop appropriate strategies for identifying and assessing sites contaminated by mercury and mercury compounds and that any actions to reduce the risks posed by such sites shall be performed in an environmentally sound manner. Releases from contaminated sites are therefore addressed by article 12. Moreover, contaminated sites may be diffuse sources.

III. List of potentially relevant point source categories

21. The submissions from parties and other stakeholders on potentially relevant point source categories are compiled in the appendix to the present report. The group reviewed the submissions and noted that the list included diffuse sources, point sources addressed by other articles and point sources for which sufficient data were not available.

22. Some experts proposed that the present report include a non-exhaustive list of potentially relevant point sources and provided example of such sources. Despite discussions taking place during the four teleconferences and through electronic means, however, the group was unable to agree on such a list.

23. Further work is therefore needed to collect information on point sources that parties regard as significant in the preliminary list and that are not addressed by articles other than article 9, and to consider which point sources should be covered by the guidance on the methodology for preparing inventories of releases.

⁴ The current guidelines under the Basel Convention do not include deposit into/onto land or release, untreated, into a body of water as environmentally sound management options. They state that wastewater from recovery operations that contain mercury should not be released untreated to the aquatic environment. The document also describes the reduction of mercury releases from recovery operations using thermal treatment and solidification/stabilization treatment of waste to be landfilled. The Conference of the Parties to the Basel Convention, in its decision BC-14/8, decided to update the guidelines.

⁵ The group of technical experts on mercury waste thresholds considers that the level of risk associated with industrial-scale waste rock and overburden is currently too low to require the development of a threshold for those sources.

IV. Structure and road map for the development of guidance on the preparation of inventories

24. The following structure is proposed for the development of guidance on the preparation of inventories, on the basis of the existing guidance on the methodology for preparing inventories of emissions pursuant to article 8:⁶

- (a) Background;
- (b) Steps for parties to take to establish a release inventory, using available tools, including the mercury inventory toolkit;
- (c) Initial steps: identifying potentially relevant point source categories and individual facilities releasing mercury or mercury compounds;
- (d) Collecting release information from individual facilities, including the source (type and location of the facility), release quantities and the form of mercury released, when feasible;
- (e) Developing a national release inventory database;
- (f) Making the data publicly accessible and searchable.

25. Regarding the road map, it was suggested that, as there will be a two-year period between the third and fourth meetings of the Conference of the Parties, a road map could include planning for the development of draft guidance on best available techniques/best environmental practices for releases, such as the identification of release categories for which such guidance should be developed, as required under subparagraph 7 (a) of article 9. In this manner, discussions on such guidance could begin before the fourth meeting of the Conference of the Parties. In contrast with article 8, where best available techniques/best environmental practices are mandatory for new sources, under article 9, their application is one of several options for both new and existing sources. Given that difference, the usefulness and practicality of best available techniques/best environmental practices for specific processes will be considered during the intersessional period. The Conference of the Parties at its fourth meeting could endorse the categories and the road map subject to the development of guidance on best available techniques/best environmental practices.

26. The following road map is proposed for the development of draft guidance on standardized and known methodologies for preparing inventories for the sources included in the list of any significant anthropogenic point source of release categories not addressed in provisions of the Convention other than article 9.

Proposed road map for the development of release inventory guidance

Secretariat to circulate a call to parties and other stakeholders to submit existing information on the calculation of releases and on other methodologies for the estimation of releases from the identified source categories. This will involve contact with relevant industry associations and an invitation for them to participate in the work of the group of technical experts.	January 2020
Secretariat to draft general guidance for release inventories, based on available tools, including the mercury inventory toolkit.	March 2020
Group of technical experts to review the submissions and draft general guidance. The group will advise the secretariat on any potential further information collection.	April 2020
Draft general guidance to be posted on the Convention website for comment.	May 2020
Further information collection to be undertaken, as advised by the group.	May–August 2020
Secretariat to compile the information on release estimation methodologies.	September 2020
Group of technical experts to revise the draft general guidance and to review the information on release estimation methodologies before posting it on the Convention website.	September–November 2020
Further information collection to be undertaken, including through pilot use by several parties of the guidance in order to identify specific relevant sources and estimate mercury releases.	December 2020–March 2021

⁶ Available at www.mercuryconvention.org/Convention/Formsandguidance/tabid/5527/language/en-US/Default.aspx.

Group of technical experts to review the outcome of the pilot process and other technical information.	April 2021
Draft report on the intersessional work, including the proposed categories of point source of releases and the road map for selection of point source categories and development of guidance on best available techniques/best environmental practices, to be posted on the Convention website for comment.	May 2021
Report to the fourth meeting of the Conference of the Parties to be finalized.	July 2021

Appendix

1. Table 1 is a compilation of submissions relating to potentially relevant categories of release sources, based on the mercury inventory toolkit. As source categories could consist of both point and diffuse sources in different proportions, it is important to identify the nature of the source category in those terms. Furthermore, because parties may decide whether a source of releases to land or water within their territory is “significant”, some of the sources below may not be considered significant in all cases (e.g., the releases may be low in terms of quantity or concentration).

2. The sources that are largely diffuse or for which insufficient data are available to determine whether they are significant are listed separately in table 2. Further consideration of the nature of the source categories, of whether these are addressed by other articles, and of the availability of the related data is needed in both tables.

Table 1

Preliminary list of potentially relevant point source categories

Source category in the mercury inventory toolkit		Release points*	Point or diffuse source	Whether addressed in other articles
Source category: Extraction and use of fuels/energy sources				
5.1.1	Coal combustion in power plants	Mercury can be released to water from coal washing. Wet and semi-wet flue-gas scrubbers may also release wastewater. Releases to land may stem from solid flue-gas residues deposited on site or disposed of in landfills and from solids from water cleaning.	Point source	Releases from waste are addressed by article 11.
5.1.2.1	Coal combustion in coal-fired industrial boilers	Releases are similar to 5.1.1 for some big facilities. Minor facilities may release solid residues from dust filters.	Point source	Releases from waste are addressed by article 11.
5.1.2.2	Other coal use	Releases are in the form of dust from filters in some cases.	Point source	Releases from waste are addressed by article 11.
NEW	Coal mining	Mercury levels are low unless concentrated, for example by coal washing, which is known to release mercury to water and land and to waste deposits. Some countries use coal washing in mining areas.	Point source	Releases from waste are addressed by article 11.
5.1.3	Mineral oils – extraction, refining and use	Mercury may be released to water from offshore oil extraction, from oil refining and probably also from onshore extraction. Major oil-based industrial boilers and power generation plants	Point source	Releases from dust filters that are handled as waste are addressed by article 11.

Source category in the mercury inventory toolkit		Release points*	Point or diffuse source	Whether addressed in other articles
		with dust filters generate filter residues containing mercury that can be managed as waste or released to land.		
5.1.4	Natural gas – extraction, refining and use	Offshore natural gas extraction may release mercury to water, as may onshore extraction. Gas extraction in regions with high levels of mercury may be done through the use of mercury filters, whose residues are disposed of as waste off site. (Gas condensates contain concentrated mercury that may be removed during upstream processes and disposed of as waste or released to land. Mercury is also extracted from condensate in petrochemical processes using mercury filters that can be managed as waste or release to land.)	Point source	Releases from mercury filters that are waste are addressed by article 11.
5.1.6	Biomass-fired power and heat production	Major biomass industrial boilers and power generation plants with dust filters may generate mercury-containing filter residues that can be managed as waste or released to land.	Point source	Releases from dust filters that are waste are addressed by article 11.
5.1.7	Geothermal power production	Depending on the technology used, vents may contain mercury if the ground is mercury-rich. Sometimes mercury is absorbed in filters and the absorbents are regenerated off site (extracted mercury is marketed or disposed of as waste) or disposed of directly as waste.	Point source	Releases from waste are addressed by article 11.
Source category: Primary (virgin) metal production				
5.2.1	Mercury (primary) extraction and initial processing	Mercury is released to water and land from both	Point source	Releases from waste are addressed by article 11.

Source category in the mercury inventory toolkit		Release points*	Point or diffuse source	Whether addressed in other articles
		production and waste management.		
5.2.2	Gold (and silver) extraction with mercury amalgamation processes	Mercury is released to land and water.	Point source or diffuse source	Artisanal and small-scale gold mining is addressed in article 7. Releases from waste are addressed by article 11.
5.2.3	Zinc extraction and initial processing	The mining and concentration phases are likely to involve significant mercury releases to water and land, but data are lacking. The extraction phase (smelting) generates releases to water from wet gas cleaning and may also entail releases to land. Direct leaching technology may cause releases to water and land, although no quantitative data are available.	Point source	Releases from waste are addressed by article 11.
5.2.4	Copper extraction and initial processing	The mining and concentration phases are likely to involve significant mercury releases to water and land, but data are lacking. The extraction phase (smelting) generates releases to water from wet gas cleaning and may also entail releases to land. Direct leaching technology may cause releases to water and land, although no quantitative data are available.	Point source	Releases from waste are addressed by article 11.
5.2.5	Lead extraction and initial processing	The mining and concentration phases are likely to involve significant mercury releases to water and land, but data are lacking. The extraction phase (smelting) generates releases to water from wet gas cleaning and may also entail releases to land. Direct leaching technology may	Point source	Releases from waste are addressed by article 11.

Source category in the mercury inventory toolkit		Release points*	Point or diffuse source	Whether addressed in other articles
		cause releases to water and land, although no quantitative data are available.		
5.2.6	Gold extraction and initial processing by methods other than mercury amalgamation	Significant releases to land (on site) and releases to water have been reported.	Point source	Releases from waste are addressed by article 11.
5.2.7	Aluminium extraction and initial processing	During the step of producing the intermediate alumina from bauxite, mercury releases to water and land may occur. No data are available regarding releases from the final step of producing aluminium from alumina.	Point source	Releases from waste are addressed by article 11.
5.2.8	Other non-ferrous metals – extraction and processing	Mercury releases to land from silver mining have been reported. Releases to land and water are likely to take place during the extraction of other non-ferrous metals, but no data are available.	Point source	Releases from waste are addressed by article 11.
Source category: Production of other minerals and materials with mercury impurities				
5.3.1	Cement clinker production	Mercury is concentrated during the recycling of filter dust. The dust may therefore be bled regularly to be deposited as waste or on land. No detailed data are available about the fate of such dust.	Point source	Releases from waste are addressed by article 11.
5.3.2	Pulp and paper production	Releases to land and water have been reported.	Point source	Releases from waste are addressed by article 11.
5.3.3	Production of lime and light-weight aggregates	Releases to land and water from lime production have been reported.	Point source	Releases from waste are addressed by article 11.
5.3.4	Other minerals and materials	It is known that there are mercury releases from fertilizer production in some countries, but published data have not been found.	Point source	
Source category: Intentional use of mercury in industrial processes				
5.4.1	Chlor-alkali production with mercury technology	Releases to water and land and absorption in building materials	Point source	Manufacturing will cease pursuant to article 5. Releases from waste are

Source category in the mercury inventory toolkit		Release points*	Point or diffuse source	Whether addressed in other articles
		have been reported. Significant proportions of the releases/emissions have yet to be measured.		addressed by article 11.
5.4.2	Vinyl chloride monomer production with mercury catalyst	Good documentation of the presence of mercury in wastewater and treatment residue exists.	Point source	Addressed by article 5. Releases from waste are addressed by article 11.
5.4.3	Acetaldehyde production with mercury catalyst	Releases to water have been reported.	Point source	Manufacturing will cease pursuant to article 5. Releases are addressed by article 11.
5.4.4	Other production of chemicals and polymers with mercury	Releases to water and land from the production of mercury-containing chemicals or from the use of mercury in production processes have been reported. Releases may also occur during alcoholate production.	Point source	The production of sodium or potassium methylate and ethylate is addressed by article 5. Releases from waste are addressed by article 11.
Source category: Manufacturing of consumer products with intentional use of mercury				
5.5.1	Thermometers with mercury	Releases to land and/or water have been reported from the production of some mercury-added products (from breakages/spillages). The same is expected to occur in relation to other mercury-added products.	Point source	Manufacturing will cease pursuant to article 4. Releases from waste are addressed by article 11.
5.5.2	Electrical switches and relays with mercury	Releases that may reach land and/or water have been reported.	Point source	Manufacturing will cease pursuant to article 4, except for certain very specialized products. Releases from waste are addressed by article 11.
5.5.3	Light sources with mercury	Releases that may reach land and/or water have been reported.	Point source	Releases from the manufacture of such products with mercury concentrations below those specified in annex A are not covered by article 4. Releases from waste are addressed by article 11.

Source category in the mercury inventory toolkit		Release points*	Point or diffuse source	Whether addressed in other articles
5.5.4	Batteries with mercury	Releases to land and water have been reported.	Point source	Releases from the manufacture of such products with mercury concentrations below those specified in annex A are not covered by article 4. Releases from waste are addressed by article 11.
5.5.5	Polyurethane with mercury catalysts	Releases to land and/or water have been reported from the production of some mercury-added products.	Point source	Manufacturing is addressed by article 5. Releases from waste are addressed by article 11.
5.5.6	Biocides and pesticides with mercury	Releases to land and/or water have been reported from the production of some mercury-added products.	Point source	Manufacturing will cease pursuant to article 4. Releases from waste are addressed by article 11.
5.5.7	Paints with mercury	Releases to land and/or water have been reported from the production of some mercury-added products.	Point source	The manufacture of biocidal paints will cease pursuant to article 4. Releases from the production of paints in which cinnabar is used as a pigment are not addressed under article 4. Releases from waste are addressed by article 11.
5.5.8	Pharmaceuticals for human and veterinary uses	Releases to land and/or water have been reported from the production of some mercury-added products.	Point source	Releases from waste are addressed by article 11.
5.5.9	Cosmetics and related products with mercury	Releases to land and/or water have been reported from the production of some mercury-added products.	Point source	Manufacturing will cease pursuant to article 4, except for certain products for the eye area that are not addressed by article 4. Releases from waste are addressed by article 11.
Moved from 5.6.2	Manometers and gauges with mercury	Releases to land and/or water have been reported from the production of some mercury-added products (from breakages/spillages).	Point source	Manufacturing will cease pursuant to article 4. Releases from waste are addressed by article 11.

Source category in the mercury inventory toolkit		Release points*	Point or diffuse source	Whether addressed in other articles
Source category: Other intentional product/process use				
5.6.1	Dental clinics using mercury-amalgam fillings	Releases to water have been reported throughout the life cycle of dental amalgam, such as from new fillings or from the drilling of old fillings in dental clinics.	Point source or diffuse source	Parties may, but are not required to, address such releases under article 4. Amalgam wastes are addressed by article 11.
5.6.3	Laboratory chemicals and equipment with mercury	Releases to land and/or water have been reported.	Point source or diffuse source	Releases from waste are addressed by article 11.
5.6.4	Mercury metal use in religious rituals and folklore medicine	It is expected that releases to land and water occur during manufacturing, trade and use, although no quantitative data are available. For example, significant amounts of mercury are used in Ayurvedic medicine in India.	Diffuse source, except perhaps in manufacturing	Releases from waste are addressed by article 11.
Source category: Production of recycled metals (secondary metal production)				
5.7.1	Production of recycled mercury (secondary production)	Releases to water and land/waste have been reported.	Point source	Releases are addressed by article 11.
5.7.2	Production of recycled ferrous metals (iron and steel). (This includes the recycling of scrap vehicles.)	Releases to water and land/waste have been reported, although no quantitative data are available.	Point source	Releases are addressed by article 11.
Source category: Waste incineration				
5.8.1	Incineration of municipal/general waste	Releases to water from wet flue-gas cleaning have been reported. Releases to land and/or waste streams of ash and flue-gas cleaning residues have also been reported.	Point source	Releases are addressed by article 11.
5.8.2	Incineration of hazardous waste	Releases to water from wet flue-gas cleaning have been reported. Releases to land and/or waste streams of ash and flue-gas cleaning residues have also been reported.	Point source	Releases are addressed by article 11.
5.8.3	Incineration of medical waste	In many developing countries, medical waste is burned in suboptimal conditions and releases to land, with solid residues,	Point source	Releases are addressed by article 11.

Source category in the mercury inventory toolkit		Release points*	Point or diffuse source	Whether addressed in other articles
		are to be expected. For developed countries, releases are expected to be as described for municipal waste, above.		
5.8.4	Sewage sludge incineration	Releases to water from wet flue-gas cleaning have been reported. Releases to land and/or waste streams of ash and flue-gas cleaning residues have also been reported.	Point source	Releases are addressed by article 11.
Source category: Waste deposition/landfilling and wastewater treatment				
5.9.1	Controlled landfills/deposits	Releases to water, through leaching, have been reported.	Point source	Releases are addressed by article 11.
5.9.5	Wastewater system/treatment	Mercury may be released to water if insufficient mercury control is practised. Releases to water and land (e.g., through the application of sludge as fertilizer) have been reported.	Point source	Wastewater treatment residues that have been disposed of are addressed by article 11.
Source category: Crematoria and cemeteries				
5.10.1	Crematoria/cremation	When corpses contain dental amalgam, it will be emitted into the air during cremation. Releases to land and/or waste streams may take place when crematoria are equipped with mercury filters.	Point source	Air-pollution-control residues are addressed by article 11.

* Based on information aggregated for the mercury inventory toolkit, available at www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/mercury/mercury-inventory-toolkit.

Table 2

Other sources included in the submission of potentially relevant source categories

Source category in the mercury inventory toolkit		Release points*	Point or diffuse source	Whether addressed in other articles
5.1.5	Other fossil fuels – extraction and use	Releases from combustion of peat, use of oil shale and combustion of other fossil fuels may take place.	Point source	Releases from waste are addressed by article 11.
5.2.9	Primary ferrous-metal production	Releases to land and/or waste streams have been reported and releases to water from wet scrubbers may take place.	Point source	Releases from waste are addressed by article 11.
5.6.5	Miscellaneous product uses, mercury metal uses and other sources	Releases to land and/or water have been reported.	Point source or diffuse source	Releases from waste are addressed by article 11.
NEW	Lighthouses	Releases to land and water may take place via the washing of condensed evaporated mercury and through spillage.	Point source	Releases from waste are addressed by article 11.
5.7.3	Production of other recycled metals	Releases may take place during the dismantling of factories, oil rigs, etc. where mercury-contaminated equipment (e.g., pipelines, tanks, heat exchangers) is recycled.	Point source	Releases are addressed by article 11.
5.8.5	Informal waste burning	Mercury-added products may be burned in the open in developing countries. Some of the mercury may evade evaporation owing to low temperatures and give rise to releases to land and water (leaching of remnants).	Diffuse source.	Releases are addressed by article 11.
5.9.2	Diffuse disposal under some control	This source category refers to use of residues under roads, for example, which may be considered as releases to land, with the potential for slow releases to water.	Diffuse source	Releases are addressed by article 11.
5.9.3	Informal local disposal of industrial-production waste	In such instances releases to land and water may be expected.	Diffuse source	Releases are addressed by article 11.
5.9.4	Informal dumping of general waste	Informal dumping is itself a release to land. It may also cause releases to water.	Diffuse source	Releases are addressed by article 11.
5.10.2	Cemeteries	When corpses with dental amalgam are buried, the mercury will be released directly to land.	Diffuse source	

* Based on information aggregated for the mercury inventory toolkit, available at www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/mercury/mercury-inventory-toolkit.