



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

Online, 1–5 November 2021**

Item 4 (d) of the provisional agenda***

**Matters for consideration or action by the Conference of
the Parties: mercury waste: consideration of the relevant
thresholds****Report on the intersessional work on mercury waste****Note by the secretariat****I. Background**

1. Paragraph 2 of article 11 of the Minamata Convention on Mercury defines mercury wastes as substances or objects:

- (a) Consisting of mercury or mercury compounds;
- (b) Containing mercury or mercury compounds; or
- (c) Contaminated with mercury or mercury compounds,

in a quantity above the relevant thresholds defined by the Conference of the Parties to the Minamata Convention, that are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law or the Convention. It further provides that the definition excludes overburden, waste rock and tailings from mining, except from primary mercury mining, unless they contain mercury or mercury compounds above thresholds defined by the Conference of the Parties. Paragraph 3 of article 11 provides that the parties are to take appropriate measures for mercury waste.

2. In decision MC-2/2, the Conference of the Parties established a group of technical experts to proceed with the discussion on mercury waste thresholds during the intersessional period leading up to the third meeting of the Conference of the Parties. At its third meeting, the Conference of the Parties considered the report of the group¹ and adopted decision MC-3/5, in which it:

- (a) Provided definitions of waste consisting of or containing mercury or mercury compounds (waste falling under subparagraph 2 (a) or (b) of article 11);
- (b) Requested the secretariat to improve the guidance on the preparation of national action plans for artisanal and small-scale gold mining (ASGM) regarding management of tailings from such mining;

* Reissued for technical reasons on 20 September 2021.

** The resumed fourth meeting of the Conference of the Parties to the Minamata Convention on Mercury is to convene in person in Bali, Indonesia, and is tentatively scheduled for the first quarter of 2022.

*** UNEP/MC/COP.4/1.

¹ UNEP/MC/COP.3/5.

(c) Decided that, at the time, there was no need to develop thresholds for overburden and waste rock from mining other than primary mercury mining;

(d) Encouraged the parties and other stakeholders to contribute to the process of updating the technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with mercury or mercury compounds by providing comments on the draft updated guidelines when invited to do so;

(e) Invited the appropriate bodies of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal to take decision MC-3/5 into account in updating the technical guidelines referred to above.

3. In the same decision, the Conference of the Parties extended the mandate of the group of technical experts until the fourth meeting of the Conference of the Parties, to:

(a) Conduct a technical analysis of threshold options, considering the impacts of applying the proposed options, and make recommendations;

(b) Develop thresholds for mercury waste falling under subparagraph 2 (c) of article 11;

(c) Conduct an analysis of whether ASGM tailings should be subject to a threshold, taking into account the relationship between articles 11 and 7;

(d) Recommend thresholds for tailings from industrial-scale non-ferrous metal mining other than primary mercury mining;

(e) Subject to completion of the four items above, review, and possibly recommend a revision of, the lists of mercury waste falling under subparagraphs 2 (a) to (c) of article 11, set out in tables 1, 2 and 3 of the annex to the decision, as appropriate.

4. The decision also set out the following additional procedural provisions to guide the group's work:

(a) All the experts nominated by the parties and present will work on the issues subject to the mandate of the group, avoiding separate treatment of the technical issues.

(b) All decisions of the group of technical experts should be agreed on the basis of consensus. In case no consensus is reached, the secretariat should take note of this lack of consensus, register the discussion and the different positions, and note the level of support for each alternative.

(c) Prior to the meeting, the secretariat and the chair of the group of technical experts will provide to the parties a provisional agenda and a scenario note in preparation for the meeting.

II. Work of the group of technical experts

5. The group consisted of 25 members nominated through the bureau members representing the five United Nations regions, as follows: for the African States: Madagascar, Mali, Mauritius, Nigeria and Senegal; for the Asia-Pacific States: China, Indonesia, Iran (Islamic Republic of), Japan and Sri Lanka; for the Eastern European States: Armenia, Croatia, Estonia, the European Union and Romania; for the Latin American and Caribbean States: Argentina (for the year 2020), Brazil (2021), Chile, Colombia (2021), Costa Rica (2020), Guyana and Jamaica; and for the Western European and other States: France, Germany, Sweden, Switzerland and the United States of America.

6. The group confirmed its earlier election of Ms. Oluwatoyin Olabanji (Nigeria) and Mr. Andreas Gössnitzer (Switzerland) as co-chairs, agreed to invite eight experts from industry and civil society to participate as observers, and invited input from other experts from parties, intergovernmental organizations and non-governmental organizations.

7. The group held 11 online meetings and adopted its report, which describes the consensus reached by the group on various issues, as well as the different positions and level of support for each alternative on issues where no consensus was reached. The report of the group is set out in annex II to the present note and is summarized below.

A. Technical analysis of threshold options

8. The group agreed that an approach to establishing thresholds based on total concentration of mercury in waste is currently the most appropriate way to identify waste contaminated with mercury or mercury compounds (see section II of annex II to the present note).

B. Thresholds for waste contaminated with mercury or mercury compounds

9. The group could not reach consensus on thresholds for waste contaminated with mercury or mercury compounds. The group's deliberations are described in section III of annex II to the present note. Two alternative views were expressed:

(a) Some experts proposed that waste contaminated with mercury or mercury compounds above 25 mg/kg total mercury content should be regarded as mercury waste, that parties could establish relevant threshold(s) between 1 and 25 mg/kg at the national or local level and that further intersessional work was needed to develop guidance on establishing and implementing national or local thresholds.

(b) Other experts did not support the proposed 25 mg/kg total mercury content threshold and proposed that the group of technical experts should do further work to establish a threshold between 1 and 25 mg/kg total mercury content.

10. Of the 25 members of the group nominated by parties, nine supported the option described in paragraph 9 (a) and four supported the option described in paragraph 9 (b). Several said that they needed to consult further before deciding which option to support.

C. Tailings from artisanal and small-scale gold mining

11. The group agreed that ASGM tailings were addressed by the requirements of article 7 of the Convention and that there was currently no need to establish a threshold for such tailings under article 11. The group's deliberations are described in section IV of annex II to the present note.

D. Thresholds for tailings from industrial-scale non-ferrous metal mining other than primary mercury mining

12. The group agreed to propose the following two-tier thresholds for mine tailings:

(a) Tier-1 threshold: total mercury content of 25 mg/kg;

(b) Tier-2 threshold: 0.15 mg/L in the leachate using an appropriate test method simulating the leaching of mercury at the site where the tailings are deposited.

13. The group agreed that further work was needed to develop guidance on the test methods for the tier-2 threshold. The group's deliberations are described in section V of annex II to the present note.

E. Lists of mercury waste

14. As at August 2021, the group had not considered the lists of mercury waste.

III. Work undertaken by the secretariat

15. The outcome of the secretariat's work on the guidance regarding the management of ASGM tailings is presented in document UNEP/MC/COP.4/6.

16. The secretariat participated in meetings of the small intersessional working group under the Basel Convention for updating the technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with mercury or mercury compounds and provided the parties with an update on the progress of the work of that group. The outcome of the work of the small intersessional working group was submitted to the Conference of the Parties to the Basel Convention at its fifteenth meeting and is available to the Conference of the Parties to the Minamata Convention as document UNEP/MC/COP.4/INF/24.

IV. Suggested action by the Conference of the Parties

17. A draft decision on mercury waste thresholds based on the work of the group of technical experts is set out in annex I to the present note. The report of the group is set out in annex II. The technical annexes to the report are presented in document UNEP/MC/COP.4/INF/27.

18. The Conference of the Parties may wish to:
- (a) Note the work done by the group of technical experts and the secretariat;
 - (b) Consider the recommendations in relation to threshold options, ASGM tailings and other mine tailings;
 - (c) Note the lack of agreement on the thresholds for waste contaminated with mercury or mercury compounds and the two proposed approaches presented, and decide to adopt one approach or a mix of the two;
 - (d) Consider the draft decision on mercury waste thresholds set out in annex I to the present note.

Annex I

Draft decision MC-4/[--]: Mercury waste thresholds

The Conference of the Parties,

Recalling the thresholds for certain categories of wastes provided for by the Conference of the Parties in decision MC-3/5, as well as the work done by the group of technical experts established in decision MC-2/2 and by the secretariat to allow for further consideration of mercury waste thresholds by the Conference of the Parties at its fourth meeting,

Welcoming the report of the group of technical experts on mercury waste thresholds,¹

1. *Decides* that the threshold for mercury waste falling under subparagraph 2 (c) of article 11 should be established based on the total mercury content;

(Option 1: paragraphs 2–6)

2. [*Decides* that waste contaminated with mercury or mercury compounds with a total mercury content above 25 mg/kg shall be regarded as mercury waste falling under subparagraph 2 (c) of article 11;

3. *Notes* that waste contaminated with mercury or mercury compounds between 1 and 25 mg/kg total mercury content may pose a risk to human health if it is deposited or spread onto land without proper management measures, and invites parties to consider establishing relevant threshold(s) between 1 and 25 mg/kg at a national or local level to define mercury waste falling under subparagraph 2 (c) of article 11;

4. *Decides* that waste contaminated with mercury or mercury compounds with a total mercury content below 1 mg/kg shall not be regarded as mercury waste falling under subparagraph 2 (c) of article 11;

5. *Requests* the group of technical experts established in decision MC-2/2 to develop voluntary guidance on the establishment of risk-based thresholds between 1 and 25 mg/kg, on the implementation of such thresholds and on other measures to prevent mercury pollution from the depositing and spreading of waste onto land;

6. *Invites* parties to share information on national or local thresholds and cooperate in enhancing national capacities for establishing and implementing such thresholds, and requests the secretariat to facilitate such cooperation.]

(Option 2: paragraph 7)

7. [*Requests* the group of technical experts to consider and propose a threshold between 1 and 25 mg/kg total mercury content that provides for the protection of human health;]

8. *Decides* that no threshold needs to be established for tailings from artisanal and small-scale gold mining in which mercury amalgamation is used to extract gold from ore, and that all tailings from such mining should be managed in an environmentally sound manner pursuant to article 7 and in line with the national action plans that respective parties develop using the guidance document for developing a national action plan to reduce and, where feasible, eliminate mercury use in artisanal and small-scale gold mining;²

9. *Decides* to define the following two-tier thresholds above which tailings from mining other than primary mercury mining are not excluded from the definition of mercury waste pursuant to paragraph 2 of article 11:

(a) Tier-1 threshold to be applied first: 25 mg/kg total mercury content;

(b) Tier-2 threshold to be applied to tailings above the tier-1 threshold: 0.15 mg/L in the leachate using an appropriate test method simulating the leaching of mercury at the site where the tailings are deposited;

10. *Requests* the group of technical experts to develop a guidance document on test methods to be used for the tier-2 threshold for tailings from mining other than primary mercury mining;

¹ Annex II to document UNEP/MC/COP.4/8.

² Annex II to document UNEP/MC/COP.1/17, as amended by the Conference of the Parties, as appropriate.

11. *Decides* to extend the mandate of the group of technical experts until the fifth meeting of the Conference of the Parties;
12. *Invites* parties to review the membership of the group of technical experts as necessary and to inform the secretariat of any change in the membership through the bureau representatives of the five United Nations regions;
13. *Requests* the group of technical experts to continue its work electronically to address the matters mentioned in the previous paragraphs and report on its work to the Conference of the Parties at its fifth meeting;
14. *Requests* the secretariat to continue to support the work of the group of technical experts.

Annex II

Report of the group of technical experts on mercury waste thresholds

I. Background

1. In decision MC-2/2, the Conference of the Parties to the Minamata Convention on Mercury established a group of technical experts to proceed with the discussion on mercury waste thresholds during the intersessional period leading up to the third meeting of the Conference of the Parties, as per the provisions of paragraph 2 of article 11 of the Minamata Convention.¹
2. At its third meeting, in November 2019, the Conference of the Parties considered the group's report and, in decision MC-3/5, extended its mandate to:
 - (a) Conduct a technical analysis of threshold options, considering the impacts of applying the proposed options, and make recommendations.
 - (b) Develop thresholds for mercury waste falling under subparagraph 2 (c) of article 11 (i.e. waste contaminated with mercury or mercury compounds, hereinafter referred to as "category C waste").
 - (c) Conduct analysis of whether tailings from artisanal and small-scale gold mining should be subject to a threshold, taking into account the relationship between articles 11 and 7.
 - (d) Recommend thresholds for tailings from industrial-scale non-ferrous metal mining other than primary mercury mining.
 - (e) Subject to completion of the four items above, review, and possibly recommend a revision of, the lists of mercury waste falling under subparagraphs 2 (a) to (c) of article 11, set out in tables 1, 2 and 3 of the annex to the decision, as appropriate.
3. In the same decision, the Conference of the Parties requested the following additional procedural provisions to guide the group's work:
 - (a) All the experts nominated by the parties and present will work on the issues subject to the mandate of the group, avoiding separate treatment of the technical issues.
 - (b) All decisions of the group of technical experts should be agreed on the basis of consensus. In case no consensus is reached, the secretariat should take note of this lack of consensus, register the discussion and the different positions, and note the level of support for each alternative.
 - (c) Prior to the meeting, the secretariat and the chair of the group of technical experts will provide to the parties a provisional agenda and a scenario note in preparation for the meeting.

II. Technical analysis of threshold options

4. As requested by the Conference of the Parties, the group conducted a technical analysis of the three approaches to establishing thresholds identified in document UNEP/MC/COP.3/7: (a) total concentration of mercury in a waste; (b) measures of the release potential of mercury in a waste; and (c) a qualitative determination (i.e. a listing approach).
5. The group noted that the mercury waste thresholds were for defining mercury waste under article 11 only, not for defining mercury wastes categorized as hazardous wastes. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal contained separate provisions, definitions and party obligations in respect of hazardous wastes, and hazardous characteristics were listed in Annex III to that Convention. The latest draft of the Basel Convention technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with mercury or mercury compounds (hereinafter referred to as the Basel Technical Guidelines) stated that the guidelines "focus on mercury wastes categorized as hazardous wastes as defined under the Basel Convention and mercury wastes as defined by the Minamata Convention".

¹ References to articles and annexes in this report are references to articles and annexes of the Minamata Convention on Mercury, unless otherwise specified.

6. Based on its technical analysis of the three approaches to establishing thresholds, the group concluded that a total concentration threshold was currently the most appropriate way to identify category C waste subject to the Minamata Convention. The listing approach was not feasible for establishing thresholds for the wide variety of category C wastes due to their variable composition and mercury content. When compared to the release potential approach, the total concentration approach had the following advantages:

(a) Category C wastes were managed in a large variety of ways, and not only disposed of on land. Leach testing procedures focused on evaluating mercury release to groundwater from land disposal.

(b) Even when category C wastes were placed on land, a range of release and exposure scenarios of concern exist, and were not limited to leaching into groundwater.

(c) Noting that paragraph 3 (c) of article 11 addresses transboundary movement of mercury waste, a threshold linked to a particular management assumption, such as a leaching threshold, might not ensure the prevention of environmental and health risks in a receiving country with different exposure conditions and management practices.

(d) There were internationally accepted protocols for measuring the level of mercury present in a waste sample based upon total concentrations. There was no comparable globally accepted leaching procedure for category C wastes potentially managed under diverse conditions.

7. The group also agreed that parties might use appropriate methods to distinguish between different types of mercury waste and apply appropriate criteria and testing methods in association with waste management requirements and exposure scenarios to achieve environmentally sound management (ESM) of mercury waste. For example, leach testing for some types of category C waste managed on land was widely used in many jurisdictions as a part of environmentally sound management of such waste. In the future, as more information became available, it might be possible to develop different thresholds for various wastes and management requirements.

8. The full report of the technical analysis is set out in document UNEP/MC/COP.4/INF/27.

III. Thresholds for category C waste

9. In establishing mercury waste thresholds, the group agreed that, as general and key principles, the thresholds must:

(a) Ensure the achievement of the human health and environmental protection objective of the Minamata Convention.

(b) Be science-based and backed up with accurate and up-to-date data.

(c) Be practicable/implementable in terms of waste management and mercury content measurement.

(d) Not lead to a disproportionate administrative burden vis-à-vis the resulting environmental benefits.

10. A proposal for a total mercury concentration threshold of 25 mg/kg was submitted, based on the classification of mercury for hazards to the aquatic environment under the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).² The proposed threshold was based on the most stringent limit for mercury or mercury compounds in GHS. Proponents and other experts asserted that the proposal of 25 mg/kg was backed up by scientific knowledge.³

11. Other experts presented existing risk-based limit values ranging from 1 to 25 mg/kg for protecting human health from direct exposure to mercury, including via inhalation and ingestion. Those values were developed by national governments under various exposure scenarios, referencing health-based mercury risk levels established by World Health Organization and others. Experts noted that the values were also science-based.

12. One expert proposed 1 mg/kg as a precautionary threshold to protect sensitive populations from human health effect of mercury, taking into account the maximum permissible mercury content

² *Globally Harmonized System of Classification and Labelling of Chemicals (GHS)*. Seventh revised edition. (United Nations publication, 2017). <https://unece.org/ghs-rev7-2017>.

³ Hennebert, P. 2019. Proposition of a threshold for waste contaminated with mercury (compounds) in application of the Minamata Convention on Mercury and impact assessment. *Detritus*, vol. 06 – June 2019, pages 25–31. <https://doi.org/10.31025/2611-4135/2019.13822>.

in skin lightening creams as an exposure limit for human health. The expert also noted that one party had established a threshold limit of 1 mg/kg elemental mercury that should not be exceeded for residential soil based on risk and exposure considerations for vulnerable subpopulations. A number of experts, citing the need for precaution and a lack of infrastructure and capacity for the environmentally sound management of category C mercury waste in developing countries, supported the most protective threshold concentration limit of 1 mg/kg.

13. Other experts raised concerns that such a low threshold would be impractical to implement, due to the difficulty in measurement and potential overlap with background mercury levels in soil. Some experts believed that such a value would be so inclusive that it would not distinguish between conditions posing significant mercury risks and conditions representing largely unavoidable background exposures. It was also pointed out that the 1 mg/kg proposal was based on the assumption that all mercury present was elemental and that the volatilized mercury was contained indoors. Risk evaluations (from the same source) based on other scenarios also relying on direct exposure resulted in higher values.

14. The group was unable to reach a consensus on specific threshold values for category C waste. The group's discussion is summarized below, with two proposed alternatives. The secretariat will note the level of support to each alternative and inform the Conference of the Parties.

A. Alternative 1: total mercury threshold of 25 mg/kg with a risk-based approach at the national level between 1 and 25 mg/kg

15. Experts who submitted an initial proposal for a threshold of 25 mg/kg submitted a completed proposal. They proposed to use a hazard-based threshold of 25 mg/kg for the global definition of mercury waste, while addressing the need for risk-based management for waste below that threshold.

16. The completed proposal was based on the following considerations:

(a) The proposed 25 mg/kg threshold was based upon the most stringent limit in GHS for mercury and mercury compounds.

(b) Under paragraph 3 of article 11, parties had an obligation to manage wastes qualifying as mercury wastes under paragraph 2 of article 11 in an environmentally sound manner, taking into account the Basel Technical Guidelines. The guidelines identified several waste management operations as ESM,⁴ all of which involved treatment in dedicated facilities and/or containment in engineered landfills. The guidelines were currently being updated taking into account decision MC-3/5, but the waste management operations identified as ESM in the latest draft of the updated guidelines⁵ were the same as those in the current version of the guidance. In that regard, the experts highlighted that such waste management operations were unlikely to cause any hazard or risk to human health as workers involved in those ESM operations were covered by national and regional occupational safety and health measures, standards and requirements.

(c) The establishment at the global level of a threshold in a risk-based approach would not be feasible considering the differing parameters affecting soil contamination with mercury, including climatic and soil conditions. It would result in different thresholds for the same waste depending on the exposure scenario. Hence, a category C waste would qualify as a mercury waste or not based on its final destination, which would imply a high level of uncertainty. In addition, most of the time, the

⁴ The following operations are identified as ESM under the Basel Technical Guidelines:

- D5 Specially engineered landfill;
- D9 Physico-chemical treatment;
- D12 Permanent storage;
- D13 Blending or mixing prior to submission to operations D5, D9, D12, D14 or D15;
- D14 Repackaging prior to submission to operations D5, D9, D12, D13 or D15;
- D15 Storage pending operations D5, D9, D12, D13 or D14;
- R4 Recycling/reclamation of metals and metal compounds;
- R5 Recycling/reclamation of other inorganic materials;
- R7 Recovery of components used for pollution abatement;
- R8 Recovery of components from catalysts;
- R12 Exchange of wastes for submission to operations R4, R5, R8 or R13;
- R13 Accumulation of material intended for operations R4, R5, R8 or R12.

⁵ Annex to document UNEP/CHW.15/6/Add.6. The Conference of the Parties to the Basel Convention will consider these draft technical guidelines for possible adoption at its fifteenth meeting, which started in an online format in July 2021 and will resume in a face-to-face format in 2022.

direct reuse of waste (e.g. land spreading) was subject to specifications regarding the substances concerned, including specific concentration limits, to ensure that the risk was acceptable vis-à-vis its intended use. In conclusion, the risk depended on use and local natural conditions and could therefore not be globalized.

(d) In addition, a low threshold of 1 mg/kg would be impractical to implement. It required measurements with higher quality. Moreover, it might not distinguish between conditions posing significant mercury risks and conditions representing largely unavoidable background exposures. In many countries, the total mercury concentration in soil quality standards was higher than 1 mg/kg.

(e) Experts stressed also that the thresholds being considered were only for defining mercury waste under article 11 and the issue was thus clearly distinct from the issue of mercury contaminated sites addressed under article 12 and in decision MC-3/6 establishing guidance on the management of such sites. In that respect and to ensure correct implementation of the Minamata Convention, those experts highlighted the possible need to call on parties to clarify, at the fourth meeting of the Conference of the Parties, what should fall under the scope of application of article 11 in terms of category C waste and what should be covered by article 12 on contaminated sites.

(f) Experts underlined the importance of establishing a threshold for waste contaminated with mercury or mercury compounds, as had been done for waste consisting of or containing mercury or mercury compounds, for ensuring the achievement of the objectives of the Minamata Convention.

17. The proposed threshold and relevant risk management measures are presented below.

1. Hazard-based approach – total mercury content above 25 mg/kg

18. Waste with total mercury content above 25 mg/kg was to be regarded as mercury waste, which all parties had an obligation to manage in an environmentally sound manner taking into account the Basel Technical Guidelines. The threshold was established assuming that the waste was not deposited or spread onto land and that risk-based measures might be taken as described below.

2. Risk-based approach – total mercury content between 1 and 25 mg/kg

19. Waste with total mercury content between 1 mg/kg and 25 mg/kg might pose a risk to human health if it were deposited or spread onto land without proper management measures. Parties might decide to establish relevant threshold(s) at a national or local level using a risk-based approach and require environmentally sound management of waste above the thresholds established at the national or local level.

20. In that context, the Conference of the Parties might wish to consider:

(a) Sharing information on national or regional thresholds;

(b) Further intersessional work with a view to developing voluntary guidance on establishing risk-based thresholds between 1 and 25 mg/kg, on the implementation of such thresholds and on other measures to prevent mercury pollution from the depositing and spreading of waste onto land;

(c) Developing training activities for parties in order to enhance their capacities for measuring and determining relevant thresholds.

3. Risk-based approach – total mercury content below 1 mg/kg

21. Waste containing less than 1 mg/kg of mercury posed no risk to human health or the environment under all exposure scenarios; however, it should be noted that the recognition of that fact did not prevent parties from taking additional measures to manage such waste should they wish to.

B. Alternative 2: Further intersessional work to establish a risk-based total mercury threshold between 1 and 25 mg/kg

22. Another group of experts did not support the threshold of 25 mg/kg, instead seeking a risk-based threshold value. Examples of a significant number of national risk assessments for mercury waste indicated that a threshold concentration lower than 25 mg/kg might be necessary to ensure adequate protection of human health from waste management activities. They agreed that waste contaminated with mercury or mercury compound above 25 mg/kg should be regarded as mercury waste, but did not support a 25 mg/kg threshold, even on an interim basis. They proposed that the Conference of the Parties take a decision to undertake further work to identify an appropriate total

concentration threshold value between 1 and 25 mg/kg. The rationale for the proposal is explained below.

23. First, these experts considered a 25 mg/kg threshold inadequate to protect human health under many actual waste management scenarios identified in the national risk assessments. They also noted that the 25 mg/kg value was based on acute and chronic aquatic toxicity test results, which assumed an exposure pathway from water to aquatic plants and animals. Human exposure scenarios should also be considered via inhalation and ingestion, and air emissions from waste incineration or open burning should also be taken into account.

24. Second, setting a threshold based on the assumption that waste was not deposited on the land was conceptually flawed. ESM could not be an assumption when setting the thresholds, as wastes contaminated with mercury or mercury compounds below the threshold concentration were not subject to ESM obligations under the Convention. Moreover, even under the Basel Technical Guidelines, land spreading and other scenarios where waste was deposited directly on land, leading to potentially significant human exposure, were foreseeable waste management activities. The threshold should be set such that exposure to waste contaminated with mercury below the threshold would not pose significant risks from mercury to an exposed population.

25. Third, placing the burden on parties to establish national thresholds below 25 mg/kg was inconsistent with the intent of article 11 to provide a global level of human health protection. Setting the threshold based on 25 mg/kg and relying on parties to address the resulting gaps in Convention coverage served the developed world, with its mature waste management infrastructures, but did not support the development of ESM capacity (which would help control currently plausible direct exposures) in nations currently lacking such capacity. The promise of Convention “guidance” sometime in the future did not remedy that fundamental shortcoming.

26. The experts believed that the practical issues that needed to be resolved to develop a threshold for category C wastes below 25 mg/kg could be resolved with more time. They therefore proposed that the Conference of the Parties take a decision to undertake further work to identify an appropriate total concentration threshold between 1 and 25 mg/kg.

IV. Tailings from artisanal and small-scale gold mining

27. The group conducted an analysis to assess whether tailings from artisanal and small-scale gold mining (ASGM) should be subject to a threshold, taking into account the relationship between articles 11 and 7.

28. All tailings from ASGM should be managed in an environmentally sound manner pursuant to article 7 and in line with the national action plans of the respective parties. The national action plans should be prepared in accordance with the guidance document for developing a national action plan to reduce and, where feasible, eliminate mercury use in ASGM,⁶ adopted by the Conference of the Parties at its first meeting and potentially to be revised with respect to the management of tailings from ASGM at its fourth meeting. Therefore, the group agreed that ASGM tailings were currently addressed by the requirements of article 7 and there was no need to establish a threshold for such tailings under article 11.

V. Thresholds for tailings from industrial-scale non-ferrous metal mining other than primary mercury mining

29. In decision MC-3/5, the Conference of the Parties decided that, at the time, there was no need to develop thresholds for overburden and waste rock from mining other than primary mercury mining, and that thresholds for tailings from mining other than primary mercury mining should be established in a two-tiered approach using a total mercury concentration threshold as an initial screen and a leaching threshold as the second tier, and requested the group of technical experts to work further to establish the thresholds.

30. For the tier-1 threshold, a total mercury concentration of 25 mg/kg was proposed and was agreed to by the group. The threshold was proposed based on the intrinsic hazard characteristics for the purpose of initial screening. It was critical to note that the consensus achieved on the 25 mg/kg tier-1 mine tailings threshold had no precedential value for the consideration of category C waste threshold(s) because of the important differences between the two waste types:

⁶ Annex to document UNEP/MC/COP.1/17.

(a) In the case of mine tailings, only one waste management scenario was assumed – disposal in an impoundment. For category C wastes, many waste management options had to be considered.

(b) Some of the waste management options under consideration for category C wastes might result in direct human exposure and thus pose human health risks through a variety of exposure pathways, such as inhalation and ingestion. Direct human exposure to mine tailings was less likely and thus the principal risk to human health was via the drinking water pathway.

(c) For mine tailings, there were two threshold tiers: one based on ecotoxicity (25 mg/kg) and one based on human health (the leaching threshold). For category C wastes, only one threshold was envisioned, and it therefore had to be protective of both human health and the environment.

31. For the tier-2 threshold, an inorganic mercury concentration of 0.15 mg/L in leachate was proposed and agreed to by the group under a risk-based approach to protect drinking water. This proposal was based on the European test method EN 12457-2 using a liquid-to-solid ratio of 10 L:1 kg. It was calculated so that the World Health Organization drinking water standard of 0.006 mg/L could be achieved with a dilution-attenuation factor derived from modelling the leaching from the tailings and migration through groundwater to a well 200 metres from the tailings. The groundwater model was designed assuming reasonable flow rates and applying a water-solids partitioning coefficient (Kd) established with a conservative assumption from a literature review. The technical description of the calculation is presented in document UNEP/MC/COP.4/INF/27.

32. The group noted that it was not currently possible to specify one single test method to be used for all the mining sites, but that recently developed leach testing methods were capable of considering the variability in key leaching parameters and could provide leaching estimates that reflected a broad range of field conditions. Test methods used by parties in relevant regulations included the following:

(a) Synthetic Precipitation Leaching Procedure (SPLP): Environmental Protection Agency (EPA) method 1312 and American Society for Testing and Materials International (ASTM) D6234-13

(b) Shake Flask Extraction (SFE): Modification of ASTM D3987-12

(c) Shake Test: European Standard (EN) 12457-1, EN 12457-2, EN 12457-4

(d) Meteoric Water Mobility Procedure (MWMP) A3:H5 (part of the Nevada regulations): ASTM E2242-13

(e) Japanese Leaching Test No. 13

(f) Leaching Environmental Assessment Framework (LEAF): EPA Method 1314 and 1316

(g) Ministry of Environmental Protection, China: HJ 557-2010 Solid waste – Extraction procedure for leaching toxicity – Horizontal vibration method.

33. The group also noted that some test methods, such as the Toxicity Characteristic Leaching Procedure (EPA method 1311), used for landfilling of waste containing organic matter, were clearly not applicable to mine tailings.

34. The group noted the need for further work on the collection of data on mercury content in mine tailings and guidance on applying the threshold for different test methods and exposure conditions.

VI. Lists of mercury waste

35. As the group could not complete the four work items, it did not work on the lists of mercury waste. Noting, however, that such work would facilitate the implementation of article 11, the group agreed to review the lists of mercury wastes through electronic communication, the outcome of which may be presented to the Conference of the Parties at its fourth meeting as an information document.