Consultation Document

Legislative Proposal on

Regulation of

Mercury, Mercury Compounds and

Mercury-Added Products

Environment Bureau **Environmental Protection Department**

August 2018

Table of Content

Executive Summary

1. The Minamata Convention on Mercury ("the Convention") aims to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. The People's Republic of China ("China") became a Party to the Convention on 31 August 2016. The Convention entered into force in China on 16 August 2017, and also applies to the Hong Kong Special Administrative Region ("the HKSAR").

2. The Convention contains 35 Articles and among them are ten operational Articles which stipulate the obligations on controlling the entire life cycle of mercury from its supply, trade, use, storage, release and disposal. Among these operational Articles, there are obligations under some Articles as tabulated below that cannot be effectively fulfilled in Hong Kong currently as relevant local legislation is not available.

Article	Key Obligations
3(6) & (8)	Control import and export of mercury.
4(1)	Prohibit manufacture, import or export of some mercury-added products by a phase-out date.
5(2) & (3)	Prohibit or restrict the use of mercury or mercury compounds in some manufacturing processes.
10(2)	Control interim storage of mercury and mercury compounds.

3. To fulfil the HKSAR's obligations under the Convention, the Government is planning to put in place a new piece of legislation. The present consultation aims to seek the views of the public, relevant trades and other stakeholders on the provisions of the new legislation.

4. For the control on import and export of mercury, it is proposed that a single licence approach resembling the waste permit under the Waste Disposal Ordinance (Cap. 354) be adopted. As the Convention stipulates that export of mercury is not allowed except for a use allowed under the Convention, the use of the imported mercury in Hong Kong will also be controlled under the new legislation.

5. Carriers / forwarders will be included under the definition of importer / exporter in the new legislation and they may also be held liable under the new legislation for any illegal import or export of mercury. Following the provisions of the Convention, exemption shall be provided for certain quantities of mercury and mercury compounds for use for laboratory-scale research or as a reference standard.

6. For the control on mercury-added products, the new legislation will prohibit the manufacture, import or export of those mercury-added products as listed in Part I of Annex A of the Convention by 31 December 2020. For robust control on mercury-added products, the supply and sale of the mercury-added products will also be prohibited after three years from the aforesaid phase-out date. Use of the listed mercury-added products is not an offence.

7. For the control on manufacturing processes using mercury or mercury compounds, as previous consultations have indicated that all the processes listed in Parts I and II of Annex B of the Convention do not exist in Hong Kong, the use of mercury or mercury compounds in these manufacturing processes *(as also listed in paragraphs 5.1 and 5.2)* will be prohibited on the date when the new legislation comes into effect.

8. The storage of mercury or mercury compounds will be controlled by a permit system. The storage permits will generally be valid for one year. There will be exemption for storage of certain quantities of mercury and mercury compounds to be used for laboratory-scale research or as a reference standard.

9. Penalty levels for offences under the various provisions of the new legislation are also proposed in this document. The key ones are tabulated below:

Convicted Offence	First Offence		Subsequent Offence	
	Maximum Fine	Imprisonment	Maximum Fine	Imprisonment
Import / export of scheduled chemicals without a valid permit	$200,000	6 months	$500,000	2 years
Failure to comply with a condition or conditions of the import / export permit	$200,000	6 months	$500,000	2 years
Use of imported scheduled chemicals not in accordance with the use specified in permit	$200,000	6 months	$500,000	2 years
Illegal manufacture, import, export, selling, supply, offer for sale or offer for supply of scheduled mercury-added products	$200,000	6 months	$500,000	2 years
Illegal use of scheduled chemicals in scheduled manufacturing processes	$200,000	6 months	$500,000	2 years
Storage of scheduled chemicals without a valid permit	$200,000	6 months	$500,000	2 years
Storage of scheduled chemicals while failing to comply with a condition of the permit	$200,000	6 months	$500,000	2 years

10. The Government welcomes comments on the new legislation. To facilitate readers to focus on the pertinent issues, we have prepared some questions as below for reference by readers:-

(i) Do you agree to the proposal to adopt a single licence approach to control the import / export of mercury (as opposed to a dual licences approach) as set out in Chapter 3?

(ii) Are the exemption quantities for import / export of mercury or mercury compounds to be used for laboratory-scale research or as a reference standard as proposed in Chapter 3 appropriate?

(iii) Do you agree to the proposed grace period of three years for prohibition of sale or supply of mercury-added products after the phase-out date for prohibition of their manufacture, import or export as set out in Chapter 4?

(iv) Do you agree to the proposal to prohibit the use of mercury or mercury compounds in manufacturing processes on the date when the new legislation comes into effect as set out Chapter 5?

(v) Are the exemption quantities for storage of mercury or mercury compounds to be used for laboratory-scale research or as a reference standard as proposed in Chapter 6 appropriate?

(vi) Do you find the penalty levels as summarised in the table under paragraph 9 above appropriate?

11. Readers are welcome to provide their comments in response to the above questions or on other aspects of the new legislation. In case you do not agree to the proposals set out above and/or consider them inappropriate, please set out the reasons and your alternative suggestions, if any. Comments may be sent to the Environmental Protection Department by post, facsimile or email as detailed in paragraph 7.5 of this document by **5 October 2018**.

Environment Bureau
Environmental Protection Department
August 2018

Chapter 1 Introduction

1.1 Mercury is a naturally occurring element. Owing to its unique physical and chemical properties, mercury has been used in various products and processes for hundreds of years. It is contained in many products such as electrical switches, measuring and control equipment, energy-efficient fluorescent light bulbs, batteries, cosmetics, pharmaceuticals, Chinese medicines, dental amalgam and jewellery, etc.

1.2 Mercury is a highly toxic heavy metal which poses a global threat to human health and the environment. Together with its various compounds, it has a range of severe health impacts, including damage to the central nervous system, thyroid, kidneys, lungs, immune system, digestive system, eyes and skin. Victims may suffer memory loss or language impairment, and the damage to the brain cannot be reversed. Exposure to mercury, even in small amounts, may cause serious effects.

1.3 Mercury, if not handled properly, can also be released unintentionally from some industrial processes. Once released, mercury persists in the environment where it circulates between air, water, sediments, soil and biota in various forms. Mercury can be transported over long distances in the atmosphere. It can be taken up by microorganisms and converted to methylmercury, and then concentrated up the food chain. Human exposure to mercury occurs mainly through consumption of fish and other marine species contaminated with methylmercury, the most toxic and bioaccumulative form of mercury. Infants, children and pregnant women are among the most vulnerable and sensitive to the health effects of mercury.

1.4 While mercury as an element will always be present in our environment, recognising the detrimental and long lasting effect of mercury on human health and the environment, the United Nations Environment Programme decided in 2009 to develop a global legally binding instrument on mercury.

1.5 The Minamata Convention on Mercury (《關於汞的水俣公約》), taking the name of the place where thousands of people were poisoned by mercury-contaminated industrial wastewater in the mid-20th century in Japan, was adopted and opened for signature at a Diplomatic Conference held in Kumamoto, Japan, in October 2013.

1.6 The Minamata Convention on Mercury is an international treaty with the objective to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. The People's Republic of China ("China") signed the Minamata Convention on Mercury on 10 October 2013. China subsequently ratified and became a Party to the Minamata Convention on Mercury on 31 August 2016. Per Article 153 of the Basic Law, the Central People's Government has decided, after consultation with the Hong Kong Special Administrative Region ("the HKSAR"), that the Minamata Convention on Mercury shall also apply to the HKSAR.

1.7 The Minamata Convention on Mercury entered into force in China, including the HKSAR, on 16 August 2017. The Environment Bureau is responsible for coordinating the implementation of the Minamata Convention on Mercury in the HKSAR, which requires orchestrated efforts from all involved Bureaus and Departments in the Government, as well as the support from all relevant professions, trades, industries and the public at large.

1.8 This consultation document describes the background of the Minamata Convention on Mercury, explains the obligations under which all signatory countries are required to fulfil, and introduces to relevant trades, stakeholders and the public the approach adopted by the HKSAR Government in preparing a legislative proposal for regulation of mercury, mercury compounds, mercury-added products and manufacturing processes using mercury, with a view to enabling the HKSAR to effectively fulfil its obligations under the Minamata Convention on Mercury.

Chapter 2 The Minamata Convention on Mercury

Requirements of the Minamata Convention on Mercury

2.1 To achieve its objective, the Minamata Convention on Mercury ("the Convention") contains provisions relating to the entire lifecycle of mercury, including controls and reductions across a range of products, processes and industries where mercury is sourced, used, released or emitted. The Convention addresses direct mining of mercury, its global trade, export and import, its use in mercury-added products and manufacturing processes, emission to the atmosphere and releases to water bodies, its safe storage and disposal when becoming waste.

2.2 The Convention contains 35 Articles and 5 Annexes. Articles can be divided into four main categories:

(i) Operational matters
(ii) Support to Parties
(iii) Information and raising awareness
(iv) Administrative matters

2.3 Articles concerning operational matters require Parties to take actions to reduce anthropogenic emissions and releases of mercury and mercury compounds to the environment, with controls on the entire lifecycle of mercury. Obligations under these articles include the following:

Article	Obligation
3	Ban mercury mining
	Restrict import and export of mercury
4	Phase out and phase down mercury-added products
5	Phase out and phase down manufacturing processes in which mercury or mercury compounds are used
7	Control use of mercury amalgamation to extract gold in artisanal and small-scale gold mining
8	Control emissions of mercury to the atmosphere
9	Control releases of mercury to land and water

Article	Obligation
10	Environmentally sound interim storage of mercury
11	Environmentally sound management of mercury wastes
12	Manage mercury contaminated sites

2.4 The text of the Convention can be downloaded from the website of the Minamata Convention on Mercury at the following link:

<http://www.mercuryconvention.org/Portals/11/documents/Booklets/COP1%20version/Minamata-Convention-booklet-eng-full.pdf >

Applicability of Existing Frameworks

2.5 To take forward implementation of the Convention in Hong Kong, the Government commissioned a study in 2015 to review the provisions under the existing administrative and regulatory frameworks of the HKSAR, which may be utilised for fulfilling the various obligations as laid down in the operational articles. As part of the study, the Environmental Protection Department also sounded out the key stakeholders including relevant trades and industries on the impacts to their businesses should the Convention be fully implemented in Hong Kong. The list of stakeholders consulted in 2015 and 2016 on implementation of the Convention is set out in **Annex I**.

2.6 Based on the findings from the study to review existing administrative and regulatory frameworks in the HKSAR, it is concluded that some obligations in the operational articles of the Convention are readily fulfilled in the HKSAR. The following table gives a brief account of those obligations which are enforceable under existing frameworks or there is already *de facto* compliance by the HKSAR. More details on how these obligations are fulfilled under existing frameworks of the HKSAR are set out in **Annex II**.

Obligations	Article	Relevant Government Departments	Relevant Existing Legislation
1. Restrict mercury mining; restrict and eliminate artisanal and small-scale gold mining	3(3) - (4) & 7(2)	Civil Engineering Development Department	Mining Ordinance (Cap. 285)
2. Phase down the use of dental amalgam	4(3)	Department of Health	---
3. Control emissions of mercury and mercury compounds to the atmosphere	8	Environmental Protection Department	Air Pollution Control Ordinance (Cap. 311)
4. Control releases of mercury and mercury compounds to land and water	9	Environmental Protection Department	Water Pollution Control Ordinance (Cap. 358)
5. Manage mercury waste	11	Environmental Protection Department	Waste Disposal Ordinance (Cap. 354)
6. Manage contaminated sites	12	Environmental Protection Department	Environmental Impact Assessment Ordinance (Cap. 499)

Requirements not Enforceable under Existing Frameworks

2.7 Apart from those obligations that are readily fulfilled in the HKSAR, there are some obligations in the operational articles lacking the corresponding administrative measures or legislative provisions for their effective implementation in the HKSAR. There are four key obligations currently assessed to have not been fulfilled under existing regulatory frameworks in the HKSAR as summarised in the table below:

Item	Article	Key Obligations
1.	3(6) & (8)	• Prohibit import of mercury unless the mercury is for a use allowed in the HKSAR under the Convention; and that the Central People's Government has provided its written consent to the exporting Party. • Prohibit export of mercury unless the mercury is for a use allowed to the importing Party under the Convention; and that the importing Party has provided its written consent to the Central People's Government.
2.	4(1)	• Prohibit manufacture, import or export of mercury-added products as listed in the Convention by the phase-out date.
3.	5(2) & (3)	• Prohibit the use of mercury or mercury compounds in manufacturing processes as listed in the Convention by the phase-out date. • Restrict the use of mercury or mercury compounds in manufacturing processes as listed in the Convention.
4.	10(2)	• Ensure that interim storage of mercury and mercury compounds intended for a use allowed under the Convention is undertaken in an environmentally sound manner.

2.8 To allow implementation of the above four items which are currently not enforceable in the HKSAR, the Government of the HKSAR is working on a new piece of legislation to provide the statutory basis for their implementation.

Mainland and Overseas Experience

2.9 The approaches undertaken by the Mainland and some overseas jurisdictions for implementing the requirements of the Convention which are currently not enforceable in the HKSAR are summarised in **Annex III**.

Chapter 3 Control on Import and Export of Mercury

Hong Kong's Situation

3.1 According to trading statistics, Hong Kong has been active in international trading of mercury among other economies like Indonesia, India, Singapore, etc. before the Convention comes into force.

3.2 The trading of mercury in Hong Kong is currently not under any control. With the Convention entering into force, there is a need to impose control on trading of mercury in order to fulfil the requirement of the Convention.

Requirements under the Convention

3.3 Article 3 of the Convention controls international trading of mercury among Parties and also between Parties and non-Parties. Since the Convention applies to the HKSAR, under Article 3(6) Hong Kong shall not allow export of mercury except to a Party or non-Party that has provided its written consent, and only for the purpose of (i) a use allowed to a Party under the Convention, or (ii) environmentally sound interim storage for a subsequent use allowed under the Convention. For export to a non-Party, in addition to the above requirements, the non-Party shall also provide its certification that measures will be taken to ensure proper protection of human health and the environment, and that the interim storage of mercury and management of mercury waste will be undertaken in an environmentally sound manner.

3.4 The same principle applies for importing mercury into Hong Kong. The exporting Party or non-Party must obtain the prior written consent from the Central People's Government before export, and the imported mercury can only be used for a use allowed under the Convention, or for environmentally sound interim storage for a subsequent use allowed under the Convention. For the avoidance of doubt, trading or re-export of mercury is not an allowed use under the Convention.

3.5 In addition to the requirements under paragraph 3.4 above, Article 3(8) of the Convention further requires that Hong Kong shall not allow

import of mercury from a non-Party unless the non-Party has provided certification that the mercury is not from sources identified as not allowed under the Convention.

Control Approach

3.6 There are various pieces of existing legislation in the HKSAR imposing control on the import and export of different goods or articles. We have reviewed these various pieces of legislation, in particular environment related ordinances implementing control regimes in the HKSAR for implementing the requirements of various international environmental conventions. The existing environment related ordinances reviewed include the following:-

Environment Related Ordinance	International Convention
Hazardous Chemicals Control Ordinance (Cap. 595)	• Stockholm Convention on Persistent Organic Pollutants • Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
Pesticides Ordinance (Cap. 133)	• Stockholm Convention on Persistent Organic Pollutants • Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
Waste Disposal Ordinance (Cap. 354)	• Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586)	• Convention on International Trade in Endangered Species of Wild Fauna and Flora

We have also considered the provisions in the Import and Export Ordinance (Cap. 60) which imposes an additional tier of control on the carriers or forwarders for import or export of goods by utilising the import / export licence mechanism.

3.7 Upon reviewing the provisions under various pieces of existing legislation and the specific requirements under the Convention for controlling international trading of mercury, we consider that regulation implemented through a permit control system in the HKSAR should effectively implement the requirements under Article 3(6) and (8) of the Convention. Similar permit control systems have been provided for under the Hazardous Chemicals Control Ordinance (Cap. 595) and the Waste Disposal Ordinance (Cap. 354), which are effectively controlling the import and export of hazardous chemicals and hazardous wastes respectively in Hong Kong.

Liability of Carriers

3.8 Our experience on enforcement of the Waste Disposal Ordinance (Cap. 354) and the Hazardous Chemicals Control Ordinance (Cap. 595) has revealed that for effective control on import / export of wastes or hazardous chemicals, apart from imposing liability on importers / exporters, it is important that the carriers or forwarders, as the party which undertakes the actual transportation activity, be also held liable.

3.9 To achieve effective control yet without putting an undue burden on the applicant, we propose to adopt a control mechanism similar to that under the Waste Disposal Ordinance (Cap. 354), under which a single licence is issued to the importer / exporter.

3.10 For the avoidance of doubt, the definition of "import into Hong Kong" and "export from Hong Kong" in the new legislation include the activities undertaken by carriers and forwarders, which will therefore also be held liable for illegal import or export of mercury or mercury compounds. This is similar to the arrangement adopted in the Waste Disposal Ordinance (Cap. 354) for illegal import or export of wastes. This notwithstanding, the new legislation will incorporate appropriate defence clauses to relieve carriers or forwarders, including their involved staff, of the liability if the commission of the offence is due to the act or default of another person, reliance on information supplied by another person, or some other cause beyond the control of the carriers or forwarders.

Permit Control Arrangement

3.11 The new legislation will adopt a single permit system similar to the waste permit system under the Waste Disposal Ordinance (Cap. 354). Mercury and mercury compounds controlled under the Convention will be defined as **scheduled chemicals** in the new legislation. The scheduled chemicals will be categorised into Type 1 or Type 2, with only the Type 1 scheduled chemicals subject to the permit control system for their import or export[1]. No person shall import Type 1 scheduled chemicals as listed in the legislation into Hong Kong, or export Type 1 scheduled chemicals as listed in the legislation from Hong Kong, except under and in accordance with a permit issued by the Director of Environmental Protection. The list of mercury and mercury compounds that will be defined as scheduled chemicals for controlling under the new legislation is given in the table below. Subject to the decision of the Conference of the Parties to the Convention or when the need has otherwise emerged, Type 2 scheduled chemicals may be converted to Type 1 scheduled chemicals, or specific mercury compounds may be added to the list of scheduled chemicals in future through legislative amendments.

Scheduled Chemical	Molecular Formula	CAS Number
Type 1		
Mercury*	Hg(0)	7439-97-6
Type 2		
Mercury (I) chloride	Hg_2Cl_2	10112-91-1
Mercury (II) oxide	HgO	21908-53-2
Mercury (II) sulphate	$HgSO_4$	7783-35-9
Mercury (II) nitrate	$Hg(NO_3)_2$	10045-94-0
Cinnabar	--	--
Mercury Sulphide	HgS	1344-48-5

* This also includes mixtures of mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95% by weight.

[1] While not under the permit control system for import or export, Type 2 scheduled chemicals will be subject to control in manufacturing processes using mercury compounds and in storage, as detailed in Chapter 5 and Chapter 6 respectively.

3.12 As a prerequisite for the Director of Environmental Protection ("DEP") to consider issuance of an import permit for importing Type 1 scheduled chemicals into Hong Kong, the applicant shall provide documents to:

(i) prove that the Central People's Government[2] has given its written consent under Article 3(6)(a) of the Convention, to the exporting Party or non-Party for exporting Type 1 scheduled chemical to the HKSAR[3];

(ii) declare the use of the importing Type 1 scheduled chemical in Hong Kong; and

(iii) certify that the Type 1 scheduled chemical is not obtained from sources identified as not allowed under the Convention, if the exporting country / region[4] is a non-Party.

3.13 Similarly, for DEP to consider issuance of an export permit for exporting Type 1 scheduled chemicals out of Hong Kong, the applicant shall provide documents to:

(i) prove that the importing country / region has provided its written consent under Article 3(6)(a) or (b) of the Convention[5], to the Central People's Government for exporting Type 1 scheduled chemical to the importing country / region[6]; and

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[2] This includes also any authorities as may be delegated with relevant power to issue the written consent by the Central People's Government.

[3] Such written consent requirement is not necessary for import/export of mercury between the Hong Kong and the Mainland, Macau or Taiwan.

[4] There may be regions, such as the European Union, as noted from its practice on implementing the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, set up an authority to represent all member states in the region on issues relating to trading of chemicals.

[5] The written consent issued by the importing country / region should cover the use of the exported Type 1 scheduled chemical in the importing country / region.

[6] Please refer to footnote 3.

(ii) demonstrate that the importing country / region has measures in place to ensure proper protection of human health and the environment, and that the interim storage of the imported Type 1 scheduled chemical and management of any mercury waste so arising will be undertaken in an environmentally sound manner, if the importing country / region is a non-Party.

3.14 Similar to the waste import or export permits issued under the Waste Disposal Ordinance (Cap. 354), the permit holder has the responsibility to inform the Environmental Protection Department ("EPD") before every shipment of mercury or mercury compounds and to submit details of the shipment as required. It will be required under the permit for the permit holder to inform EPD in writing at least 7 days before the intended shipment date of mercury or mercury compound, and to furnish details of the shipment including the shipment dates, time, point of loading / unloading, and the flight number or name of the vessel used. A certified copy of the bill of lading shall be submitted to EPD as soon as reasonably practicable.

3.15 For export of Type 1 scheduled chemicals, after the arrival of each and every shipment at the port of import, the permit holder shall submit to EPD within 30 days certified copies of the import declarations or manifests proving that the Type 1 scheduled chemicals have been exported to the Party or non-Party which has provided its written consent. Any failure to comply with the conditions of the permit will be an offence under the new legislation.

3.16 Any Type 1 scheduled chemical imported into Hong Kong must be used for a use allowed under the Convention or for environmentally sound interim storage for a subsequent use allowed under the Convention. To implement this requirement, the use of the Type 1 scheduled chemicals will be specified in the import permit and it will be an offence if the use of the imported scheduled chemical is found to be different from the use specified in the permit. Moreover, the import permit conditions will stipulate that the importer is required to keep a record of the use of the scheduled chemicals, which shall be available for inspection by EPD officers upon request.

Exemption for Laboratory-Scale Research Use

3.17 Under Article 3(2) of the Convention, provisions for controlling mercury supply sources and trade shall not apply to quantities of mercury or mercury compounds to be used for laboratory-scale research or as a reference standard. Relevant provisions will be incorporated in the legislation to exempt control of the import and export of scheduled chemicals within a certain quantity for laboratory-scale research use or as a reference standard, so as to tally with the Convention.

3.18 The Convention however does not specify the exemption quantities of mercury *(or mercury compounds if these shall be brought under import / export control in future by the Convention)* to be used for laboratory-scale research or as a reference standard. To this end, the Government proposes to adopt the following **exemption quantities for individual package** of mercury *(or mercury compounds if these shall be brought under import / export control in future by the Convention)*:

(i) Not exceeding a weight of 250 g for mercury;

(ii) Not exceeding a weight of 100 g for mercury compounds in the form of a substance; and

(iii) Not exceeding a volume of 100 ml for mercury compounds in the form of a solution.

3.19 In addition to the above exemption quantities for individual package of mercury or mercury compounds, the total quantity of mercury *(or mercury compounds if these shall be brought under import / export control in future by the Convention)* in a single shipment shall not exceed the following **total exemption quantity**:-

(i) Not exceeding a total weight of 5 kg for mercury;

(ii) Not exceeding a total weight of 2 kg for mercury compounds in the form of a substance; and

(iii) Not exceeding a total volume of 2 litre for mercury compounds in the form of a solution.

For the avoidance of doubt, for mercury compound in the form of a solution, volumes of solution with different concentrations of the same mercury compound shall be added up to give the volume of the mercury compound in the form of a solution.

3.20 It will not be an offence to import Type 1 scheduled chemicals into the HKSAR **without** a valid import permit provided that:

(i) the quantity of the scheduled chemical in any individual package does not exceed the respective **exemption quantity**;

(ii) the total quantity of the schedule chemical in a shipment does not exceed the respective **total exemption quantity**; **and**

(iii) the scheduled chemical is used for laboratory-scale research or as a reference standard.

3.21 It will not be an offence to export Type 1 scheduled chemicals out of the HKSAR **without** a valid export permit provided that:

(i) the quantity of the scheduled chemical in any individual package does not exceed the respective **exemption quantity**; **and**

(ii) the total quantity of the scheduled chemical in a shipment does not exceed the respective **total exemption quantity**.

Penalty Level

3.22 It is proposed that the new legislation should adopt penalty of adequate level and severity, as in the Waste Disposal Ordinance (Cap. 354) for controlling import and export of hazardous wastes, to discourage illegal import or export of scheduled chemicals. A person who commits an offence on import or export of scheduled chemicals, including import / export of scheduled chemicals without a valid

permit; failure to comply with a condition or conditions of the import / export permit; or use of imported scheduled chemicals not in accordance with the use specified in permit, will be liable on conviction to a fine of $200,000 and to imprisonment for 6 months for the first offence, and a fine of $500,000 and to imprisonment for 2 years for a second or subsequent offence.

Cost of Seizure and Disposal

3.23 The new legislation will empower the authority, which includes EPD and other involved Departments under the delegated authority of DEP, to seize and dispose of scheduled chemicals that are illegally imported or arranged for illegal export. The cost incurred by the Government in the seizure, storage, handling, transportation, returning to the country / region of export or disposal of scheduled chemicals that are illegally imported or arranged for illegal export will be borne by the person who is convicted of the offence of illegal import or export of the scheduled chemicals.

Disposal of Scheduled Chemicals

3.24 Mercury and mercury compounds are listed in Part B of Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C). The disposal of any scheduled chemical, which is regarded as disposal of chemical waste, shall strictly follow the control regime under the Waste Disposal (Chemical Waste) (General) Regulation.

Chapter 4 Phasing Out of Mercury-Added Products

Requirements under the Convention

4.1 Article 4(1) of the Convention requires Parties to prohibit the manufacture, import or export of mercury-added products listed in Part I of Annex A of the Convention after the phase-out date specified therein. Under the study to review the existing frameworks in the HKSAR, stakeholders from the affected trades were consulted and interviewed to assess the impacts from the proposed ban on manufacture, import or export of the listed mercury-added products. It was noted that mercury-free alternatives or products with mercury content below the specified limits are widely available in the market, and the impact to the trades and the community as a whole as a result of the proposed ban should be minimal. The mercury-added products included in Part I of Annex A of the Convention are reproduced in **Annex IV**.

4.2 To implement this requirement in the HKSAR, mercury-added products listed in Part I of Annex A of the Convention will be defined as **scheduled mercury-added products** under the new legislation. It will be an offence to manufacture, import into or export from Hong Kong any scheduled mercury-added product on or after the phase-out date specified in the legislation. For the current list of scheduled mercury-added products as set out in **Annex IV**, a phase-out date of **31 December 2020** will be specified in the new legislation. The Conference of Parties to the Convention may review and add more mercury-added products into Annex A of the Convention in future. To this end, the HKSAR may make corresponding amendment to the list of scheduled mercury-added products in the new legislation.

Further Restriction on Sale and Supply

4.3 To facilitate fulfilment of the requirement of the Convention to prohibit the manufacture and import into Hong Kong of the scheduled mercury-added products, the Government further proposes to prohibit the sale, supply, offer for sale or offer for supply of scheduled mercury-added products after three years from the phase-out date.

The ban on the sale or supply of scheduled mercury-added products, coupled with the fact that mercury-free alternatives are readily available in the market, can effectively eliminate any incentive for illegal local manufacture or smuggling of these products into Hong Kong.

4.4 For the avoidance of doubt, the use of any scheduled mercury-added product after the prohibition of sale or supply of the product is not an offence.

Products Exempted from Control

4.5 Mercury-added products which fall under the categories as tabled below will be excluded from the provisions of the new legislation for controlling scheduled mercury-added products. Subject to the decision of the Conference of the Parties to the Convention, other products may be added to the list of exempted products in the new legislation in future through legislative amendments.

Category	Exempted Products	Remarks
A	Products essential for civil protection and military uses	Excluded from Annex A as specified in the Convention
B	Products for research, calibration of instrumentation, or for use as reference standard	
C	Products used in traditional or religious practices	
D	Vaccines containing thiomersal as preservatives	
E	Pesticides	Controlled under Pesticides Ordinance (Cap. 133)

4.6 For the avoidance of doubt, mercury or mercury compounds used as Chinese medicine are regarded as products used in traditional practices in category C above and are exempted from control under the proposed new legislation. This notwithstanding, the Chinese Medicine Ordinance (Cap. 549) still applies to these products.

4.7 Mercury-containing pesticides are currently subject to regulatory control under the Pesticides Ordinance (Cap. 133) and will be excluded from control under the new legislation. Import, export, supply, manufacture, sale, possession and use of mercury-containing pesticides will be prohibited under Cap. 133.

4.8 A completed product using a scheduled mercury-added product as a part or a component is not a scheduled mercury-added product itself. A person may still use his/her stock of the scheduled mercury-added product as a component to manufacture the completed product even beyond the phase-out date. However, he/she cannot replenish his/her stock of the scheduled mercury-added product after it runs out, as the manufacture or import of the scheduled mercury-added product is prohibited by the specified phase out date, and the sale or supply of the scheduled mercury-added product in Hong Kong is also prohibited from three years after the specified phase-out date.

Penalty Level

4.9 It is proposed that a person who commits an offence on manufacture, import, export, sell, supply, offer for sale or offer for supply of scheduled mercury-added products will be liable on conviction to a fine of $200,000 and to imprisonment for 6 months for the first offence, and a fine of $500,000 and to imprisonment for 2 years for a second or subsequent offence.

Cost of Seizure and Disposal

4.10 Similar to the provisions for scheduled chemicals in paragraph 3.23, the new legislation will empower the authority to seize and dispose of scheduled mercury-added products which are illegally manufactured, imported, arranged for export, displayed for supply, supplied, displayed for sale or sold. The cost incurred by the Government in the seizure, storage, handling, transportation, returning to the country / region of export or disposal of the aforesaid illegal mercury-added products will be borne by the person who is convicted of the respective offence.

Chapter 5 Prohibition of Manufacturing Processes Using Mercury

Requirements under the Convention

5.1 Article 5(2) of the Convention requires Parties to prohibit the use of mercury or mercury compounds in the manufacturing processes listed in Part I of Annex B of the Convention after the phase-out date specified therein, as reproduced in the table below.

Processes in which Use of Mercury or Mercury Compounds are Prohibited	Phase-Out Date
1. Chlor-alkali production	2025
2. Acetaldehyde production in which mercury or mercury compounds are used as a catalyst	2018

5.2 Article 5(3) of the Convention also requires Parties to restrict the use of mercury or mercury compounds in the processes listed in Part II of Annex B of the Convention in accordance with the provisions set out therein, as listed in the table below.

Processes in which Use of Mercury or Mercury Compounds are Restricted
1. Production of vinyl chloride monomer
2. Production of sodium or potassium methylate or ethylate
3. Production of polyurethane using mercury containing catalysts

5.3 Subject to the decision of the Conference of the Parties to the Convention, more manufacturing processes may be added to Part I or Part II of Annex B of the Convention in future.

5.4 In the impact assessment carried out under the study to review existing frameworks in the HKSAR, it was revealed that there were no such manufacturing processes in Hong Kong that fall within the list in either Part I or Part II of Annex B of the Convention as tabulated in paragraph 5.1 or 5.2 respectively above. The study further concluded that, in view of the scale of these processes, it would be unlikely for any such manufacturing processes to be established in Hong Kong.

5.5 Article 5(6) of the Convention further prohibits the use of mercury or mercury compounds in a facility for the manufacturing processes listed in Annex B, which **did not exist** prior to the date of entry into force of the Convention. Under the new legislation, manufacturing processes listed in both tables in paragraphs 5.1 and 5.2 are defined as **scheduled manufacturing processes.** The Government proposes that the use of scheduled chemicals (both Type 1 and Type 2 as defined in paragraph 3.11) in scheduled manufacturing processes will be subject to prohibition on the date when the new legislation comes into effect.

5.6 Subject to the decision of the Conference of the Parties to the Convention, other manufacturing processes in which mercury or mercury compounds are used may be added into Part I or Part II of Annex B of the Convention in future. To this end, the newly added manufacturing process may also be added onto the schedule of scheduled manufacturing processes in the new legislation.

Penalty Level

5.7 A person who commits an offence on prohibition of the use of scheduled chemicals in scheduled manufacturing processes will be liable on conviction to a fine of $200,000 and to imprisonment for 6 months for the first offence, and a fine of $500,000 and to imprisonment for 2 years for a second or subsequent offence.

Chapter 6 Control on Storage of Mercury

Requirements under the Convention

6.1 Article 10(2) of the Convention requires Parties to take measures to ensure that the interim storage of mercury and mercury compounds is undertaken in an environmentally sound manner, taking into account any guidelines, and in accordance with any requirements, adopted by the Conference of the Parties to the Convention. To this end, the Convention Secretariat is preparing guidelines on environmentally sound interim storage and a copy of the latest version of the draft guidelines is attached at **Annex V.**

6.2 The current draft guidelines prepared by the Secretariat provide only directional advice and set out the objective for good storage practices. The guidelines cover various aspects including location of storage site, construction, provision of barriers, containers, transport, logging and tracking of mercury movements, monitoring and emergency practices, etc. While the objectives or targets for good practices have been set out, the guidelines do not provide detailed technical or performance requirements.

6.3 To ensure that the requirements on interim storage can be effectively fulfilled in Hong Kong, a permit system on storage of **scheduled chemicals** (both Type 1 and Type 2 as defined in paragraph 3.11) will be implemented under the new legislation. Any person possessing scheduled chemicals will be required to apply for a permit for storage under the new legislation. Major requirements ensuring environmentally sound storage of scheduled chemicals will be specified as conditions in the permit[7]. It will be an offence if any person:

[7] When drawing up the conditions in the storage permit, reference will be made to the guidelines being prepared by the Convention Secretariat as referred to in paragraph 6.1, or the final guidelines when adopted by the Conference of the Parties to the Convention, as well as the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes issued under Section 35 of the Waste Disposal Ordinance (Cap. 354).

(i) stores scheduled chemicals in Hong Kong without a valid storage permit; or

(ii) stores scheduled chemicals while failing to comply with a condition or conditions of the storage permit.

6.4 The maximum quantity of scheduled chemicals stored will be specified in the storage permit and will be regarded as one of the conditions of the storage permit.

6.5 A code of practice on storage of scheduled chemicals in Hong Kong will be promulgated under the new legislation. The code of practice will contain similar requirements as in the guidelines to be adopted by the Convention and modified to suit the conditions in Hong Kong as appropriate, and the more specific and detailed technical requirements as adopted from the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes issued under Section 35 of the Waste Disposal Ordinance (Cap. 354).

6.6 It should be noted that mercury and mercury compounds *(mercury oxide and mercury sulphate)*[8] are also listed as dangerous goods in Schedule 2 of the Dangerous Goods (Application and Exemption) Regulation ("the Regulation") (Cap. 295E). When the Regulation becomes effective, any person in possession or control of scheduled chemicals shall also observe the requirements under the Dangerous Goods Ordinance (Cap. 295).

6.7 The storage permits will generally be valid for **one year**, and may be renewed upon application.

Exemption for Laboratory-Scale Research Use

6.8 To align with the exemption for quantities of scheduled chemicals to be used for laboratory-scale research or as a reference standard from

[8] Among the scheduled chemicals as defined in paragraph 3.11, only mercury, mercury oxide and mercury sulphate are dangerous goods listed in the Dangerous Goods (Application and Exemption) Regulation (Cap. 295E).

provisions controlling import or export of scheduled chemicals, it is considered that exemption should also be given to storage of scheduled chemicals (both Type 1 and Type 2 as defined in paragraph 3.11) which are used for laboratory-scale research or as a reference standard. To this end, the new legislation will specify a threshold quantity, below which a storage permit for scheduled chemicals is not necessary.

6.9 It is proposed to adopt the following exemption quantities for storage of scheduled chemicals in a premises used as a laboratory:

(i) Not exceeding a weight of 500 g for mercury;

(ii) Not exceeding a weight of 300 g for each type of mercury compound in the form of a substance; and

(iii) Not exceeding a volume of 300 ml for each type of mercury compound in the form of a solution.

For the avoidance of doubt, a laboratory occupying two or more rooms on the same floor of a building owned by or under the management of the same company, organisation or institution is considered as one laboratory. For mercury compound in the form of a solution, volumes of solution with different concentrations of the same mercury compound shall be added up to give the volume of the mercury compound in the form of a solution.

6.10 It will not be an offence to store scheduled chemicals in a laboratory **without** a valid storage permit provided that:

(i) the total quantity of the concerned scheduled chemical(s) stored inside the laboratory does not exceed the respective exemption quantity; **and**

(ii) the concerned scheduled chemical(s) is/are used for laboratory-scale research or as a reference standard.

Penalty Level

6.11 A person who commits an offence on storage of scheduled chemicals without a valid permit, or storage of scheduled chemicals not complying with a condition of a permit will be liable on conviction to a fine of $200,000 and to imprisonment for 6 months for the first offence, and a fine of $500,000 and to imprisonment for 2 years for a second or subsequent offence.

Cost of Seizure and Disposal

6.12 The new legislation will empower the authority to seize and dispose of illegally stored scheduled chemicals. The cost incurred by the Government in the seizure, storage, handling, transportation and disposal of the illegally stored scheduled chemicals will be borne by the person who is convicted of the respective offence. As mentioned in paragraph 3.24, the handling, transportation and disposal of the illegally stored scheduled chemicals will follow the control regime under the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C).

Chapter 7 Views Sought

7.1 The Government will implement the Minamata Convention on Mercury in the HKSAR by introducing a new piece of legislation to cover those Articles which currently cannot be enforced under the existing administrative or regulatory frameworks of Hong Kong. As set out in Chapters 3, 4, 5 and 6, the new legislation will include the following major provisions:

(a) Restricting the export and import of Type 1 scheduled chemicals *(as defined in paragraph 3.11)* by implementing a permit control system which will impose liability on the importers or exporters including the carriers / forwarders. No person should be allowed to import or export Type 1 scheduled chemicals except with a valid permit. Failure to comply with the conditions of the permit will also be an offence. Exemption will be provided to scheduled chemicals used for laboratory-scale research or as a reference standard not exceeding a specified quantity.

(b) Restricting the use of imported scheduled chemicals to that as specified in the import permit. It will be an offence if the use of the imported scheduled chemicals is found to be different from that given in the permit.

(c) Prohibiting the export, import or manufacture of scheduled mercury-added products as listed in **Annex IV** by **31 December 2020**.

(d) Prohibiting sell, offer for sale, supply or offer for supply scheduled mercury-added products as listed in **Annex IV** by **31 December 2023**.

(e) Prohibiting the use of scheduled chemicals in scheduled manufacturing processes on the date when the new legislation comes into effect.

(f) Controlling the storage of scheduled chemicals by implementing a permit system. No person should be allowed to store scheduled chemicals except with a valid permit. Failure to comply with the conditions of the permit will also be an offence. Exemption will be provided to storage of scheduled chemicals in a laboratory for laboratory-scale research use not exceeding a specified quantity. The storage permit shall generally be valid for **one year**.

7.2 In connection with paragraphs 7.1(a) and (b) above, as re-export of mercury is not an allowed use under the Convention, an import permit will not be issued for any Type 1 scheduled chemical that is imported merely for re-exporting to other countries or regions.

7.3 The assessment conducted under the previous study, which sounded out the relevant trade associations and stakeholders of the requirements of the Convention, has revealed that there are currently no businesses that rely heavily on the use of mercury, and that there are widely available mercury-free alternatives for most of the scheduled mercury-added products in the market. This notwithstanding and having regard to our obligation to introduce legislation to honour our commitment to the Convention, the present legislative proposal might still incur some additional compliance costs to the trade such as the administrative cost for applying for permits under the new legislation. In drawing up the new legislation, we seek to protect human health and the environment while minimising impact to and facilitating market operation.

7.4 The Government welcomes your views on the new legislation. When responding, you may wish to focus on the pertinent issues as captured in the below questions:-

(i) Do you agree to the proposal to adopt a single licence approach to control the import / export of mercury (as opposed to a dual licences approach) as set out in Chapter 3?

(ii) Are the exemption quantities for mercury or mercury compounds to be used for laboratory-scale research or as a reference standard as proposed in Chapter 3 appropriate?

(iii) Do you agree to the proposed grace period of three years for prohibition of sale or supply of mercury-added products after the phase-out date for prohibition of their manufacture, import or export as set out in Chapter 4?

(iv) Do you agree to the proposal to prohibit the use of mercury or mercury compounds in manufacturing processes on the date when the new legislation comes into effect as set out Chapter 5?

(v) Are the exemption quantities for storage of mercury or mercury compounds to be used for laboratory-scale research or as a reference standard as proposed in Chapter 6 appropriate?

(vi) Do you find the penalty levels as summarised in the table under paragraph 9 of the Executive Summary appropriate?

In case you do not agree to the proposals set out above and/or consider them inappropriate, please set out the reasons and your alternative suggestions, if any. Comments on other aspects of the new legislation are also welcome.

7.5 Please send your comments by letter, facsimile or email to EPD on or before **5 October 2018**:

POPs Section
Cross-Boundary and International Group
Environmental Protection Department
33/F, Revenue Tower, 5 Gloucester Road, Wan Chai, Hong Kong

Facsimile: 2838 2155
Email address: mercury@epd.gov.hk

7.6 The Government will take into account the views received to optimise the new legislation.

7.7 Where appropriate, please indicate the organisation / company which you are providing views on behalf of. Any personal data provided with a submission will only be used for the purpose of this consultation exercise.

7.8 The submissions and personal data collected may be transferred to the relevant Government Bureaux, Departments or agencies for purposes directly related to this consultation exercise. The parties receiving the data are bound by such purpose in their subsequent use of the data.

7.9 The names and views of organisations, companies or individuals submitting their views in response to the consultation document (sender) may be published for public viewing after conclusion of the consultation exercise. EPD may, either in discussion with others or in any subsequent report, whether privately or publicly, quote the senders and the views they submitted in response to the consultation document. The Government will respect the wish of senders to remain anonymous or keep the views confidential in part or in whole, but if no such wish is indicated, it will be assumed that the sender has given consent to be named and his/her views be published for public information.

7.10 Any sender providing personal data in his submission will have the right of access and correction with respect to such personal data. Any request for data access or correction of personal data should be made in writing to the contact specified in paragraph 7.5 above.

Environment Bureau
Environmental Protection Department
August 2018

Annex I

List of Stakeholders Consulted in 2015 & 2016

Major Business Stakeholder Entities/Groups Engaged

Category	Stakeholders
Mercury and mercury compounds	• Kou Hing Hong Scientific Supplies Limited • Industrial Chemical Merchants' Association Limited
Lighting products	• CIE (Hong Kong) Limited
Electrical Appliances	• The Hong Kong & Kowloon Electric Trade Association • Hong Kong Electrical Appliance Industries Association Limited • The Hong Kong Electronic Industries Association Limited
Cosmetics	• The Cosmetic & Perfumery Association of HK Limited
Non-electronic measuring devices	• Hong Kong Medical and Healthcare Device Industries Association Limited
Dental amalgam	• Hong Kong Dental Association Limited
Point sources of emissions to the atmosphere	• CLP Power Hong Kong Limited • The Hongkong Electric Company Limited
Biocides in painting and coating products	• The Hong Kong Painting Contractors Association Limited • Hong Kong Architectural Coating Association Limited
Mercury wastes	• Ecospace Limited
Trade Associations	• The Chinese Manufacturers' Association of Hong Kong • Federation of Hong Kong Industries • The Hong Kong General Chamber of Commerce • The Chinese General Chamber of Commerce • The Hong Kong Chinese Importers' & Exporters' Association

Obligations of the Minamata Convention on Mercury that can be Effectively Fulfilled under Existing Administrative and Regulatory Frameworks

Obligations		Article	Key requirements of Article	How the requirements are fulfilled under Existing HKSAR Government Frameworks
1.	Restrict mercury mining; restrict and eliminate artisanal and small-scale gold mining (ASGM)	3(3)-(4) & 7(2)	● Prohibit new primary mercury mines when the Minamata Convention on Mercury ("the Convention") enters into force. ● Allow existing primary mining to operate for up to 15 years when the Convention enters into force. ● Reduce, and where feasible eliminate, the use of mercury and mercury compounds in ASGM.	● Under the Mining Ordinance (Cap. 285), all mines in Hong Kong are property of the Government, any person intending to engage in mining activities would need to obtain a licence from the Commissioner of Mines. ● There is currently no mining activity or prospecting licence or mining lease operating in Hong Kong. ● Based on mineral resources record, mercury has not been identified in Hong Kong. It is unlikely that mercury mining will be carried out. ● Trace of gold mineral was only identified at Lin Ma Hang. Mining activities at Lin Ma Hang were ended in 1962. There are no reasonable prospects for gold to be mined in Hong Kong even for ASGM. ● Mining operation is designated project under the Environmental Impact Assessment Ordinance (EIAO, Cap. 499). An environmental permit issued under the EIAO is required for any new mercury mining project.
2.	Phase down use of dental amalgam	4(3)	● Take measures to phase down use of mercury in dental amalgams. ● Take into account the Party's domestic circumstances and relevant international guidance, two or more of the nine measures	● The Government dental service has already implemented restrictions on the use of dental amalgam to its encapsulated form. ● Environmental Protection Department (EPD) in collaboration with Department of Health (DH) conducted a survey in September 2017 on the existing use and storage of dental amalgam *(in free or encapsulated form)* and use of amalgam separators among private dental facilities.

Annex II

Obligations		Article	Key requirements of Article	How the requirements are fulfilled under Existing HKSAR Government Frameworks
			specified in Part II of Annex A of the Convention should be adopted.	Results of the survey revealed that more than half of the respondents did not perform dental restorative procedures with dental amalgam in the past 3 years. For those using dental amalgam, nearly all respondents were already using encapsulated dental amalgam. ● To fulfill the obligation of the Convention, DH plans to issue a Consensus Statement in conjunction with the Dental Council of Hong Kong, the Faculty of Dentistry of the University of Hong Kong, the College of Dental Surgeons of Hong Kong and the Hong Kong Dental Association on the subject, which will recommend phasing down the use of dental amalgam and promote the use of mercury-free alternatives. ● EPD will consider launching campaigns, in collaboration with DH, to promote phasing down of use of dental amalgam.
3.	Control emissions of mercury and its compounds to the atmosphere	8	● Use best available techniques (BAT) and best environmental practices (BEP) to control and reduce emissions from new sources listed in Annex D of the Convention as soon as practicable but no later than 5 years after Convention enters into force for the Party. ● Choose one or more of the five measures in Article 8(5) of the Convention to control emissions from existing sources as soon as	● Hong Kong has adopted the following measures to control mercury emissions from points sources listed in Annex D of the Convention:- ➢ The coal-fired power plants in Hong Kong have adopted emission control technologies with co-benefits to reduce mercury. EPD is also working with the power companies to set emission limit in the Best Practicable Measures, tentatively to be completed by 2020. ➢ For coal-fired industrial boilers, approval from EPD has to be sought under the Air Pollution Control (Furnaces, Ovens & Chimneys) (Installation & Alternations) Regulations. Under the current policy, new coal-fired industrial boilers will not be approved.

Obligations		Article	Key requirements of Article	How the requirements are fulfilled under Existing HKSAR Government Frameworks
			possible, but no later than 10 years after the Convention became effective to the Party.	➢ For smelting and roasting processes, waste incineration facilities and cement clinker production facilities, they are regarded as Specified Process controlled under the Air Pollution Control Ordinance (Cap 311) (APCO). Mercury emission limits will be specified in their respective Best Practicable Measures.
4.	Control releases of mercury and its compounds to land and water	9	● Control and reduce releases to land and water using one or more of the approaches specified in Article 9(5) of the Convention.	● Releases of all pollutants including mercury to land and water bodies are controlled under the Water Pollution Control Ordinance (Cap. 358) (WPCO). ● Release limit value approach is adopted to control mercury releases from relevant sources. ● Effluent standards in the Technical Memorandum on Effluent Discharges issued under WPCO set out stringent effluent standards including mercury for discharge to all types of environmental waters.
5.	Manage mercury waste	11	● Ensure mercury waste is managed in an environmentally sound manner. ● Mercury waste can only be recovered, recycled, reclaimed or directly re-used for an allowed use or for environmentally sound disposal. ● Prohibit transport of mercury waste across international boundaries except for environmentally sound disposal in	● Mercury waste is chemical waste controlled under Waste Disposal Ordinance (Cap. 354) (WDO). ● Import and export of mercury waste is controlled under WDO, which has incorporated the requirements of the Basel Convention for transboundary movement of waste. ● The Chemical Waste Treatment Centre, which is operated by the Environmental Protection Department's contractor, has been equipped with a Mercury Waste Treatment Facility (MWTF) to treat mercury-containing waste.

Obligations		Article	Key requirements of Article	How the requirements are fulfilled under Existing HKSAR Government Frameworks
			conformity with the Convention and the Basel Convention.	
6.	Manage contaminated sites	12	● Endeavour to develop strategies to identify and assess mercury contaminated sites. ● Reduce risks posed by contaminated sites incorporating assessment of risks to human health and the environment.	● Land contamination is subject to the following legislative control: ➢ EIAO – Contaminated land assessment and remediation is required for designated projects. ➢ WDO – Sets out framework for management and prevention of waste. It is an offence for improper waste disposal leading to land contamination. ➢ WPCO – Discharge of mercury pollutants exceeding the specified limit to inland waters (e.g. groundwater) or water bodies is an offence under WPCO. ➢ The EPD conducts risk assessment for designated projects in accordance with the Land Contamination Assessment and Remediation Process and the Risk-based Remediation Goals.

Overview of Mainland and Overseas Control

(Note: The information summarised below are obtained generally from public sources and are meant to provide an overview of the relevant control regime for readers' general reference. Readers are advised to check and confirm with relevant authorities direct on the latest position as well as details of the exact scope, coverage and requirements of the relevant control regimes.)

Convention Requirement		Country / Region	Overview of Control Approach
1	Control on import and export of mercury	Mainland China	Mainland China has issued the revised 2018 China Catalogue of Strictly Restricted Toxic Chemicals (《中國嚴格限制的有毒化學品名錄》(2018 年)) to request all importers or exporters to complete the import or export procedures with the China Customs with the issuance of a clearance notice for environmental administration of import or export of toxic chemicals (including mercury). All imported mercury shall be used for a use allowed under the Minamata Convention on Mercury (the Convention) and shall be imported within a time limit specified in the clearance. If the exporting country is a non-Party, it will be required to provide a certificate to prove that the exporting mercury is not from primary mercury mining or decommissioning of chlor-alkali facilities.
		European Union	In the European Union (EU), export of mercury has been prohibited from 1 January 2018 under EU Regulation 2017/852. Mercury compounds, depending on their type, have been prohibited for export since 1 January 2018 for complete prohibition by 1 January 2020. Export of the mercury compounds for the purposes of laboratory-scale research or laboratory analysis shall be allowed. Import of mercury for a use allowed in a EU's Member State shall be allowed where the importing Member State has granted written consent to such import in either of the following circumstances:

Convention Requirement	Country / Region	Overview of Control Approach
		(a) The exporting country is a Party to the Convention and the exported mercury is not from primary mercury mining; or (b) The exporting country not being a Party to the Convention has provided certification that the mercury is not from primary mercury mining.
	Singapore	In Singapore, no person shall import, manufacture, possess for sale, sell or offer for sale any hazardous substance (which includes mercury, mercury compounds and mercury-added products) unless he/she holds a licence granted by the Director-General of Environmental Protection under the Environmental Protection and Management Act. The licensing control prevents unauthorised persons from handling hazardous substances and ensures proper safeguards are taken at all times in the handling of the substances to prevent accidental releases.
	Canada	In 2017, Canada introduced comprehensive restrictions on the export of mercury by only allowing export of mercury at a concentration of 95% or more by weight for use in laboratory analysis, scientific research or as a laboratory analytical standard, on the condition that the total quantity of mercury exported by the exporter in a calendar year does not exceed 10 kg. These comprehensive restrictions, coupled with existing stringent domestic measures to ensure that imported mercury is managed in an environmentally sound manner, has allowed Canada to not implement any import controls that would otherwise be required by Article 3(8) of the Convention.
	United States	In United States (US), under the Mercury Export Ban Act, export of metallic mercury has been prohibited since 1 January 2013. Export of mercury compounds will also be banned with effect from 1 January 2020, under the reformed Toxic Substances Control Act (TSCA). The US does not require specific measures to implement Article 3(8) of the Convention as the US has implemented a total ban on export of mercury and

Convention Requirement		Country / Region	Overview of Control Approach
			have existing stringent domestic measures to ensure that imported mercury is managed in an environmentally sound manner. Like Canada, the US does not restrict import of mercury, provided that the import conforms to requirements under the TSCA and other applicable laws.
2.	Phasing out of mercury-added products	Mainland China	In Mainland China, the manufacture (except the manufacture of thermometers and sphygmomanometers), import or export of all mercury-added products listed in Part I of Annex A of the Convention will be banned by 1 January 2021. The manufacture of mercury-containing thermometers and sphygmomanometer will be banned by 1 January 2026. The Ministry of Commerce plans to include the mercury-added products to the Catalogue of Products Prohibited from Import and Export (《禁止進出口商品目錄》).
		European Union	In the EU, the export, import or manufacture of compact and linear fluorescent lamps and high pressure mercury vapour lamp listed in Annex A of the Convention will be banned by 31 December 2018. The export, import or manufacture of other mercury-added products listed in the Convention will be banned by 31 December 2020. Mercury added products that were not being manufactured prior to 1 January 2018 shall not be manufactured or placed on the market.
		Singapore	In Singapore, the National Environment Agency (NEA) gazetted on 29 December 2017 the control of certain mercury-added products (including fluorescent lamps, high pressure mercury vapour lamps, non-electronic measuring devices, switches and relays) under the Environmental Protection and Management Act. With effect from 1 January 2020, the manufacture, import and export of the controlled mercury-added products will not be allowed. For mercury-added batteries, their manufacture, import and export including button cells containing more than 0.0005% by weight of mercury per cell have been banned since 31 March 2018. Existing non-compliance stock of mercury added batteries imported before 31 March 2018 is allowed to stay in the market until its depletion.

Convention Requirement		Country / Region	Overview of Control Approach
		Canada	In Canada, its Products Containing Mercury Regulations enacted in 2014 have prohibited the manufacture and import of most mercury-added products, except for the mercury content limits in three lamp categories: linear fluorescent lamps for general lighting purposes, cold cathode fluorescent lamps and external electrode fluorescent lamps. Minor amendments to the Products Containing Mercury Regulations are being planned to revise the mercury content limits for these lamps so as to bring them in line with the requirements of the Convention. While it is targeted to complete this process before the phase-out date of 2020 as specified in the Convention, Canada has registered an exemption of five years beyond the phase-out date (i.e. by 2025) for the import, export and manufacture of these three lamp categories, as a precautionary measure in the event of any delay.
		United States	Individual States in the US have implemented state laws to restrict or ban the sale or supply of certain mercury-added products before the Convention entered into force in August 2017. For instance, under the Mercury-Added Consumer Products Law of New York State, no person shall sell, offer for sale or distribute the mercury-added consumer products as listed in the aforesaid law starting from 2006 up to a complete ban by 2008. Federal efforts on phasing out mercury-added products are in progress.
3	Restriction of processes using mercury or mercury compounds	Mainland China	In Mainland China, the use of mercury or mercury compounds in new facilities for manufacturing processes listed in Annex B of the Convention has been banned since the Convention entered into force, i.e. on 16 August 2017. The use of mercury or mercury compounds for acetaldehyde production and chlor-alkali production will be banned according to the respective phase-out dates specified in Part I of Annex B of the Convention.

Convention Requirement		Country / Region	Overview of Control Approach
		European Union	In the EU, the use of mercury and mercury compounds in the manufacturing processes listed in Part I of Annex B of the Convention will be banned in accordance with the phase-out dates specified in the Convention.
		Canada	Canada has no chlor-alkali production using mercury, or acetaldehyde production in which mercury or mercury compounds are used as a catalyst. While Canada does not have vinyl chloride monomer production or sodium or potassium methylate or ethylate production, there are two facilities in the Province of Ontario producing polyurethane using mercury-containing catalysts. To this end, the Government of Ontario is utilising its Toxics Reduction Act to implement the measures listed in Part II of Annex B of the Convention to control the processes in the two facilities.
		United States	The US has no production of acetaldehyde, vinyl chloride monomer, sodium or potassium methylate or ethylate production, or polyurethane in which mercury or mercury compounds are used as a catalyst. For chlor-alkali production, the US has registered for an exemption pursuant to Article 6(2) of the Convention to defer the phase-out date specified in Annex B of the Convention. The US is implementing domestic strategies to encourage a timely transition to mercury-free alternative technologies for chlor-alkali production. New or reconstructed chlor-alkali production facilities in the US are already effectively prohibited from using mercury under section 112 of the Clean Air Act. The US has committed to withdraw the exemption if that becomes possible prior to its expiration date.
		Singapore	In Singapore, any person who wishes to purchase and/or use any hazardous substance controlled under the Environmental Protection and Management (Hazardous Substances) Regulations must obtain a permit. A person will be issued with a permit if:

Convention Requirement		Country / Region	Overview of Control Approach
			● he/she can show proof that the Hazardous Substances will be stored safely in an approval location and in compliance with all storage requirements; ● the use of the Hazardous Substance at his factory has been approved; and ● he/she declares having read and understand the Environmental Protection and Management Act (EPMA) and its Regulations.
4	Storage of mercury	Mainland China	Mainland China will devise control on interim storage of mercury or mercury compounds once the Conference of the Parties to the Convention has finalised the relevant guidelines on environmentally sound interim storage of mercury and mercury compounds.
		European Union	In the EU, interim storage of mercury and mercury compounds shall be carried out in an environmentally sound manner, in accordance with the thresholds and requirements set out in the EU Directive 2012/18/EU.
		Singapore	In Singapore, the Environmental Protection and Management Act stipulates that every person storing, using or otherwise dealing with any hazardous substance and every agent, servant or employee of such person shall do so in such a manner as not to threaten the health or safety of any person, or to cause pollution of the environment under the aforesaid Act. Besides, any person who wishes to store any hazardous substance controlled under the Environmental Protection and Management (Hazardous Substances) Regulations must obtain a permit and to follow specific technical requirements to ensure proper and safe storage of hazardous substances.
		Canada	In Canada, the Workplace Hazardous Materials Information System (WHMIS) is a national hazard communication standard which is implemented through coordinated federal, provincial and territorial legislation. All provinces and territories and federal agencies responsible for occupational health and safety

Convention Requirement		Country / Region	Overview of Control Approach
			have established employer WHMIS requirements within their respective jurisdictions, which ensure that controlled or hazardous products, including mercury and mercury compounds, that are used, stored, handled or disposed of in the workplace are undertaken in a proper manner. Safety Data Sheets (SDS) or Material safety data sheets (MSDS) are made available to workers, and workers receive education and training to ensure the safe storage, handling and use of these products in the workplace.
		United States	The US has authority under the Comprehensive Environmental Response, Liability, and Compensation Act and Resource Conservation and Recovery Act to ensure that the interim storage of mercury and mercury compounds that are intended for a use allowed under the Convention takes place in an environmentally sound manner.

Annex IV

Mercury-Added Products to be Phased-Out under Article 4(1) of the Minamata Convention on Mercury

Note: The following list is based on Article 4(1) and Part 1 of Annex A of the Minamata Convention on Mercury.

Mercury-Added Products	
1.	Batteries, except for button zinc silver oxide batteries with a mercury content < 2 per cent, button zinc air batteries with a mercury content < 2 per cent
2.	Switches and relays, except very high accuracy capacitance and loss measurement bridges and high frequency radio frequency switches and relays in monitoring and control instruments with a maximum mercury content of 20 mg per bridge, switch or relay
3.	Compact fluorescent lamps (CFLs) for general lighting purposes that are ≤ 30 watts with a mercury content exceeding 5 mg per lamp burner
4.	Linear fluorescent lamps (LFLs) for general lighting purposes: (a) Triband phosphor < 60 watts with a mercury content exceeding 5 mg per lamp; (b) Halophosphate phosphor ≤ 40 watts with a mercury content exceeding 10 mg per lamp
5.	High pressure mercury vapour lamps (HPMV) for general lighting purposes
6.	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for electronic displays: (a) short length (≤ 500 mm) with mercury content exceeding 3.5mg per lamp (b) medium length (> 500 mm and ≤ 1,500 mm) with mercury content exceeding 5 mg per lamp (c) long length (> 1,500 mm) with mercury content exceeding 13 mg per lamp
7.	Cosmetics (with mercury content above 1 ppm), including skin lightening soaps and creams, and not including eye area cosmetics where mercury is used as a preservative and no effective and safe substitute preservatives are available
8.	Biocides and topical antiseptics
9.	The following non-electronic measuring devices except non-electronic measuring devices installed in large-scale equipment or those used for high precision measurement, where no suitable mercury-free alternative is available: (a) barometers; (b) hygrometers; (c) manometers; (d) thermometers; (e) sphygmomanometers.

UNITED
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Matters stipulated by the Convention for action by the Conference of the Parties: the guidelines on the interim storage of mercury and mercury compounds referred to in paragraph 3 of article 10

Draft guidelines on the interim storage of mercury and mercury compounds referred to in paragraph 3 of article 10

Note by the secretariat

1. Paragraph 3 of article 10 of the Minamata Convention on Mercury provides that the Conference of the Parties shall adopt guidelines on the environmentally sound interim storage of mercury and mercury compounds, other than waste mercury, taking into account any relevant guidelines developed under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal and other relevant guidance.

2. At its sixth session, the intergovernmental negotiating committee to prepare a global legally binding instrument on mercury considered the issue of interim storage, and requested countries to provide the secretariat with information on sound mercury interim storage practices that they had adopted and successfully implemented. The committee requested the secretariat to prepare, for consideration at the committee's seventh session, a compilation and summary of the information provided by countries; to identify, in collaboration with the secretariat of the Basel Convention and relevant experts, those parts of the technical guidelines for the environmentally sound management of wastes consisting of elemental mercury and wastes containing or contaminated with mercury developed under the Basel Convention that might be relevant to the interim storage of mercury other than waste mercury; and to propose a road map for work on interim storage guidelines.

3. At its seventh session, the committee considered the information provided by countries and requested the interim secretariat to prepare draft guidelines on storage in line with the road map agreed on by the committee (UNEP(DTIE)/Hg/INC.7/22/Rev.1, annex X).

4. As requested, the interim secretariat invited Governments and others to nominate relevant experts to participate in the process of the development of draft guidelines. In consultation with the secretariat of the Basel Convention and other relevant stakeholders, the interim secretariat prepared an initial draft of the interim storage guidelines, drawing on the relevant sections of the Basel Convention's technical guidelines for the environmentally sound management of wastes containing or contaminated with mercury. In July 2016, the initial draft was circulated to the nominated experts for comment, with the request that such comments be submitted by November 2016. The comments

* UNEP/MC/COP.1/1.

received were incorporated in the draft guidelines, and the amended draft guidelines were circulated to the nominated experts in December 2016. Following discussions with the experts, the draft was made available to all stakeholders through the Minamata Convention website, with the request that comments be submitted by 23 March 2017.

5. A number of Governments and other relevant stakeholders provided comments, which have been incorporated in the revised draft to the extent possible. Some commenters recommended additional technical work on the guidelines, which was not feasible in the time available. In some cases, contradictory comments were received, with some recommending additional details be included, while others proposed a more minimalist approach, particularly where information might be available in other forums. The draft guidelines on the environmentally sound interim storage of mercury other than mercury waste are set out in annex II to the present note.

Suggested action by the Conference of the Parties

6. The Conference of the Parties may wish to consider the draft guidelines on the interim storage of mercury other than waste mercury and agree to their use in the short term. The Conference of the Parties may also wish to request additional technical work on the guidelines to further refine them, and that a revised version be presented to it for consideration at its second meeting.

Annex I

Draft decision MC-1/[XX]: Guidelines on the environmentally sound interim storage of mercury other than waste mercury

The Conference of the Parties,

Recognizing the need to assist parties in the environmentally sound storage of mercury other than waste mercury through the provision of guidelines,

1. *Approves* the guidelines on the environmentally sound interim storage of mercury other than waste mercury for use in the short term;

2. *Agrees* to encourage the use of those guidelines on a provisional basis to assist parties in meeting their obligations under article 10 of the Minamata Convention on Mercury;

3. *Requests* the secretariat to undertake further revision of the guidelines, seeking technical input from relevant experts, and to submit the revised guidelines to the Conference of the Parties to the Minamata Convention at its second meeting for further consideration and possible adoption.

Annex II

Draft guidelines on the environmentally sound interim storage of mercury, other than waste mercury

I. Introduction

1. The Minamata Convention on Mercury is a global legally binding instrument with the objective of protecting human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. The Convention contains obligations relating to mercury emissions and releases resulting from all stages of mercury use, including supply, trade, use, waste and contaminated sites. There are specific obligations relating to the environmentally sound interim storage of mercury and mercury compounds other than waste mercury, which are set out in article 10 of the Convention.

2. The Convention stipulates that the Conference of the Parties shall adopt guidelines on the environmentally sound interim storage of mercury and mercury compounds within the scope of article 10. The guidelines shall take into account any relevant guidelines developed under the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal and other relevant guidance. On this basis, the following guidelines have been prepared, in line with the request made by the intergovernmental negotiating committee to prepare a global legally binding instrument on mercury at its seventh session, and in consultation with relevant experts.

3. The guidelines do not establish mandatory requirements or attempt to add to, or subtract from, a party's obligations under the Convention, in particular article 10 of the Convention. However, in taking measures to ensure that the interim storage of mercury and mercury compounds is conducted in an environmentally sound manner, the party is to take into account any guidelines adopted by the Conference of the Parties. In addition to the guidelines to be adopted, the Conference of the Parties may adopt requirements for interim storage in an additional annex to the Convention. Such an annex would be adopted in accordance with the procedures for adopting additional annexes set out in Article 27 of the Convention.

II. Overall management of hazardous substances

4. To address the environmentally sound management of hazardous substances being stored within their territory, parties should develop and implement chemical management plans (which may include legislation, regulations, policies, agreements with industry, agreed standards, or any combination of these or other management mechanisms). Parties should have specific management plans in place for mercury and mercury compounds that are being "stored", in accordance with article 10. In order for a party to understand its needs for the interim storage of mercury and mercury compounds, it may be useful for that party, during the development of its implementation activities, to undertake further work to identify the mercury and mercury compounds that are being held in its territory, and to acquire a general understanding of the quantities of mercury and mercury compounds being stored in each location to facilitate safe and appropriate storage. Such information can also contribute to the establishment of appropriate safety measures and regulatory inspection, as well as to the preparation of emergency response plans.

5. An important component of such management plans may be the acquisition of knowledge about the identity of hazardous substances held within the party's territory and the quantities of each individual substance. For this purpose, and as part of national management of hazardous substances, inventories are an important tool for identifying, quantifying and characterizing substances present in the party's territory. In relation specifically to mercury or mercury compounds, a national mercury inventory can provide useful information for all aspects of the implementation of the Minamata Convention. Article 3 of the Convention requires parties to endeavour to identify individual stocks of mercury or mercury compounds exceeding 50 metric tons, as well as sources of mercury supply generating stocks exceeding 10 metric tons per year that are located within their territories. Parties may find it useful also to identify smaller stocks or supplies of mercury as part of their overall management of mercury. Through the identification of any uses of mercury within its territory, a party may be able to estimate the approximate quantities of mercury that may require storage. It should be noted that the intended use of stored mercury may not always be known. The United Nations Environment Programme (UNEP) *Toolkit for Identification and Quantification of Mercury Releases*[1] or other national methodologies may provide parties with additional resources or information that may be of assistance. While the main aim of the toolkit is to assess emissions and releases, it may be a valuable source of information on uses of mercury at the national level.

[1] Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/14777/Hg-Toolkit-Guideline-IL1-January2017.pdf?sequence=1&isAllowed=y.

6. As part of the overall management of hazardous substances, establishing baselines for the quantities produced, circulated, traded or in use is valuable. The guidance developed and adopted on a provisional basis by the intergovernmental negotiating committee on the identification of stocks may be used as one tool for this purpose. The information may contribute to the establishment of an information registry at the national level, which may assist with safety and regulatory inspection, as well as with the preparation of emergency response plans consistent with national regulations or legislation. At a minimum, a registry of sites approved for the interim storage of mercury may be needed to ensure that storage is undertaken in an environmentally sound manner. There is also potential to track progress at the national level towards phasing out the use of mercury.

III. Scope of the guidelines

7. These guidelines are intended to provide information relating to the interim storage of mercury and mercury compounds intended for a use allowed to a party under the Convention. Under the Convention, certain uses of mercury are not allowed after a certain date (i.e., use in the manufacture of certain mercury-added products after a phase-out date as specified in annex A under article 4 of the Convention). All uses of mercury not specified in the Convention as being not allowed are considered to be allowed to a party under the Convention.

8. These guidelines do not consider options for final or permanent storage, or for stabilization or solidification, of mercury. Those options are considered to relate to the environmentally sound management of mercury waste, and are covered in the technical guidelines for the environmentally sound management of wastes containing or contaminated with mercury developed under the Basel Convention.

9. Article 10 covers the storage of mercury and mercury compounds as defined in article 3 of the Convention that are not covered under the definition of mercury waste. On this basis, the article indicates the following:

(a) Mercury includes mixtures of mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95 per cent by weight;

(b) Mercury compounds means mercury(I) chloride (known also as calomel), mercury(II) oxide, mercury(II) sulphate, mercury(II) nitrate, cinnabar and mercury sulphide.

10. Based on the definitions in article 3, the article does not cover:

(a) Quantities of mercury or mercury compounds to be used for laboratory-scale research or as a reference standard;

(b) Naturally occurring trace quantities of mercury or mercury compounds present in such products as non-mercury metals, ores or mineral products, including coal, or products derived from these materials, and unintentional trace quantities in chemical products;

(c) Mercury-added products.

11. Additionally, as mercury defined as mercury waste under article 11 of the Convention is not covered by article 10, the article does not cover:

> Substances or objects consisting of mercury or mercury compounds, containing mercury or mercury compounds or contaminated with mercury or mercury compounds in a quantity above the relevant thresholds defined by the Conference of the Parties, in collaboration with the relevant bodies of the Basel Convention in a harmonized manner, 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 this Convention. This definition excludes overburden, waste rock and tailings from mining, except from primary mercury mining, unless they contain mercury or mercury compounds above the thresholds defined by the Conference of the Parties.

12. Under the Convention, each party shall take measures to ensure that the interim storage of mercury and mercury compounds intended for a use allowed to a party under the Convention is undertaken in an environmentally sound manner, taking into account any guidelines and in accordance with any requirements adopted. The Convention does not include a definition of the term “interim”. The English word “interim” is commonly understood to mean “in or for the intervening period; provisional or temporary”. In the case of the Minamata Convention, it may therefore apply to the period between the mercury’s being generated or acquired and its being used for a use allowed under the Convention, as well as during any transport. Requirements for the environmentally sound management of mercury will differ between mercury held in facilities and mercury in transport, and specific transport controls may apply.

13. The Basel Convention defines the "environmentally sound management of hazardous wastes or other wastes" as "taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes".

14. Extrapolating from this definition, the environmentally sound storage of mercury and mercury compounds, other than waste mercury, may be considered to be storage in which the mercury is managed in a manner that will protect human health and the environment against the adverse effects which may result from such mercury and mercury compounds. The information presented in the guidelines on interim storage provides examples and guiding text in relation to what may be considered appropriate by parties.

15. While no strict definition of the maximum storage time is established for "interim storage", in line with the common use of the English word "interim" to mean "provisional" or "temporary", a party may wish to establish at the national level the maximum duration of storage that may be considered "interim" storage, in particular to address concerns that interim storage may become de facto permanent or final storage. A party may consider applying more strict controls for mercury stored beyond an initial period (such as five years).

16. As the mercury and mercury compounds covered are considered "commodity mercury," it is considered appropriate for the responsibility for the environmentally sound interim storage of the mercury to belong to the owner or custodian of the mercury, or the entity that will gain commercial benefit from its use. A formal agreement between the owner of the mercury and the management of the storage facility may be required to formally delegate responsibility for the environmentally sound management of the mercury. It should be noted that storage facilities may be privately owned or publicly owned, either nationally or on a regional basis. The authority to operate an interim storage facility may be granted by the relevant national authority, and may specify quantitative limits for the amount of mercury to be stored along with relevant facility requirements. The responsibility for mercury and mercury compounds in transit remains with the entities identified in the national and international regulations, standards or guidance for the transport of dangerous goods (i.e. the importer, carrier and handler).

17. The Convention does not specify the amount of mercury or mercury compounds that may be stored. The guidelines for interim storage therefore cover all quantities of mercury that may be stored prior to use. However, it is recognized that the guidelines may need to be applied flexibly in accordance with the requirements of specific sites. As is noted above, article 3 of the Convention, on mercury supply sources and trade, specifies that each party is to endeavour to identify individual stocks of mercury or mercury compounds exceeding 50 metric tons, as well as sources of mercury supply generating stocks that exceed 10 metric tons per year, that are located within its territory. Guidance on the identification of such stocks and sources of supply is available in a separate guidance document, which was adopted on a provisional basis by the intergovernmental negotiating committee at its seventh session and will be considered by the Conference of the Parties at its first meeting. (After formal adoption of the final version of the guidance document, reference will be made to that version.)

18. It is anticipated that the quantity maintained in storage will be commensurate with its intended use and will be the mercury considered necessary by the party to meet the requirements of the domestic activities under way in accordance with the Convention, whether such activities consist of producing mercury-added products, undertaking a process using mercury, or using mercury in artisanal and small-scale gold mining (ASGM). In the case of ASGM, the quantities of mercury stored should be commensurate with the baseline inventories, and with reduction activities and targets specified in the article 7 national action plan, where required. The national action plan may also address how the article 10 storage obligation (taking into account these guidelines) is to be applied for ASGM-related activities and sites.

19. *Note:* The text currently refers to the amount considered necessary by the party. We may need to consider whether this should be expanded in the guidelines and linked with the quantity of mercury expected to be used in a given period. Input from industry and others would be useful to clarify what is considered a "reasonable" quantity to store on site. However, tying this to the party's decision may be considered sufficient.

IV. Good practices for storage

A. Location of mercury storage sites and site selection criteria

20. A number of factors should be considered in deciding on the location of storage facilities. A storage facility should have an environmental management system in place. In terms of siting and design, in order to avoid any significant risk of mercury release owing to factors such as geographic location, where possible storage facilities should not be built in sensitive locations such as floodplains, wetlands, areas with potential for leaching to groundwater, earthquake zones, Karst terrain, complex or unstable terrain or locations with unfavourable weather conditions or incompatible land use.

21. In selecting a location for new sites for storage of mercury or mercury compounds, consideration should be given to any requirements under national law, including those pertaining to issues such as zoning or restrictions on use. It is suggested that public consultations be held to inform the local community about siting criteria and procedures for mitigating any risks associated with mercury storage. Sites should have adequate access for receiving mercury and disbursing it for use. Consideration should be given to factors that may affect site or facility security. At private facilities using mercury or mercury compounds, consideration should be given to the actual location of the mercury storage inside the facility, including ease of access to mercury or mercury compounds. The security of the site should also be considered.

22. In assessing mercury storage sites, certain criteria may be used as “exclusion criteria”. The presence of such elements would rule out the possibility of using a particular site. Other criteria may be considered as positive or negative factors but not completely exclude the site as an option. The assessment of the importance of different criteria is based on national consideration, including a determination of acceptable risks. The importance of the criteria in selecting a suitable site may be related to the site’s effect on the stability of storage. A risk assessment for each potential site would therefore be needed. In carrying out such an assessment, consideration should be given, among other things, to the quantity of mercury or mercury compounds to be stored at the facility, as the quantity might affect storage requirements. The level of control needed to safely manage the mercury may vary according to the quantity of mercury stored.

23. In considering mercury storage sites, consideration could be given to whether national storage sites are necessary or whether commodity mercury or mercury compounds could be stored in regional storage facilities prior to use.

24. Such facilities could be located near a point of import in order to minimize the need for transportation.

B. Construction of storage sites, including provision of barriers

25. In building a new facility or retrofitting an existing one, consideration should be given to its size, layout and design, floor strength requirements, surface coatings, plumbing and drains, air flow and ventilation, and the acceptable temperature range for storing elemental mercury. The facility’s size will depend on the amount of space needed for present and future storage and on the method of storage. Regardless of size, however, storage facilities must meet certain containment characteristics in order to ensure the safe and environmentally sound interim storage of mercury (QSC, 2003).

26. The storage site should have engineered or natural barriers adequate for protecting the environment against mercury releases and a containment volume adequate for the total quantity of mercury stored (EU, 2011). Facilities should be designed to facilitate the safe handling of containers and might include separate, self-contained areas for loading operations for the shipping and receiving of containers, and for repackaging operations, which are the most vulnerable to accidents and mercury spillage.

27. To the extent feasible, facilities should be dedicated solely to mercury storage and kept completely segregated, particularly from materials incompatible with mercury, to ensure that there is no unnecessary chemical or physical reaction with mercury. To reduce the risk of fires, facilities should be constructed of non-combustible materials, and non-combustible materials should be used for pallets, storage racks and other interior furnishings (QSC, 2003).

28. The aisles in storage areas should be wide enough to allow for the passage of inspection teams, loading machinery and emergency equipment. Storage facilities should be constructed from non-flammable materials, such as poured concrete or concrete block, and should have fire alarm systems and fire suppression systems. Handling areas inside the facility, where mercury or mercury compounds may be transferred between containers, should have negative pressure environments to avoid mercury emissions to the outside of the building. Where indoor air is vented outside, particularly

from handling areas, such venting should be done via activated carbon or other mercury capture systems.

29. The storage site is to be equipped with a fire protection system (EU, 2011). Any emergency response plan should be developed in coordination with the local fire department to ensure that they are sufficiently informed, trained, equipped and otherwise prepared to safely handle any fires at the facility. To further minimize the risk of fire, it is suggested that battery-powered electric forklifts be used to transport mercury inside the storage facility (QSC, 2003).

30. The protection of soil, groundwater and surface water should be carefully considered, particularly in the construction of facilities for the storage of large quantities of mercury. Such protection should be achieved through a combination of a geological barrier and other impermeable barriers. A drainage and collection system for water discharged from storage sites should be installed within the sites to enable mercury monitoring prior to discharge to water systems. Moreover, monitoring procedures should be established for the operation and post-closure phases of the storage sites so that any possible adverse environmental effects of the storage sites can be identified and appropriate corrective measures taken. Storage site development should be guided by the nature of the site, geology and other project-specific factors, as well as appropriate geotechnical engineering principles. Such factors may be less important for sites designed for the storage of small quantities of mercury.

C. Physical conditions at storage sites

31. Storage facility floors should be designed to withstand 50 per cent more than the total load from the mercury being stored and should not be penetrated by any drains or plumbing. Sloped floors and open-flow gutters with rounded-down edges can be used to avoid trapping mercury under gutter covers and to facilitate the collection of spills. The floors of storage facilities should be covered with mercury-resistant materials, such as an epoxy coating, and should be light-coloured to allow the detection of mercury droplets. Floors and their coatings should be inspected frequently to ensure that the floors have no cracks and the coatings are intact. Walls should be built of materials that do not readily absorb mercury vapour. It is important to include redundant systems capable of dealing with greater releases of mercury so as to prevent releases in the event of an unexpected occurrence. Such systems include secondary containment, monitoring for releases and protection of the workforce and the public from exposure (US DOE, 2009; World Chlorine Council). The temperature in storage areas should remain as low as possible, preferably at a constant 21^{o}C. Storage areas should be clearly marked with warning signs (FAO, 1985; US EPA, 1997; US DOE, 2009).

32. Mercury storage should take place indoors whenever possible. When mercury is stored in enclosed outdoor facilities, particular care must be taken to ensure that there are protective measures to prevent releases of mercury into soil, groundwater or surface water. Containers should be sealed to prevent any escape of mercury vapour. Stored mercury should be protected from the elements to prevent damage to containers, and the integrity of stored containers should be regularly checked.

33. Storage facilities should be secured to avoid theft or unauthorized access.

D. Containers for the storage of mercury, including secondary containers

34. Mercury may be stored either as elemental mercury or as mercury compounds. Elemental (or metallic) mercury is a liquid at room temperature, while most mercury compounds are solids. Solid and liquid storage require different types of storage containers. The risk of contamination of other materials should be avoided. Containers and packages holding mercury should not be placed together with containers holding other substances. Separate storage areas, even within the same storage facility, should be established. Containers and packages should be marked and stored in a dry and secure place, such as a warehouse or other space that is not usually frequented by people. Such areas should not share ventilation systems with work or public areas. They should have their own ventilation systems or be vented directly to the outdoors. Ideally, ventilation systems should include pollution control devices to capture any mercury vapour or dust release. Guidance developed by the United Nations Development Programme for mercury wastes generated by healthcare facilities provides detailed advice in this regard and may be applicable to many commercial facilities.

35. Elemental mercury in bulk form should be carefully packaged in appropriate containers, such as those identified in the *United Nations Recommendations on the Transport of Dangerous Goods, Model Regulations.* (United Nations (2015a). Containers for elemental mercury should be stored upright on pallets off the ground, with overpacking (such as shrink wrapping of pallets) to provide protection during handling. Alternatively, the packages could be placed in a protective outer packaging such as a box or crate. The use of wood or other porous materials for pallets should be avoided as such materials are difficult to decontaminate after use. Liquid mercury in containers should be placed in

containment trays or in a leak-proof area of the storage facility where the edges of storage areas are curved to limit the potential accumulation of mercury in any corners, and where spills can be contained. The liquid containment volume should be at least 125 per cent of the maximum liquid volume, taking into account the space taken up by items stored in the containment area. Solid mercury compounds should be stored in sealed containers such as barrels or pails with well-fitting lids or in specially constructed containers that do not release mercury vapour.

36. Those who handle mercury should pay particular attention to the prevention of evaporation and spillage of mercury into the environment. Mercury should be placed in gas- and liquid-tight containers bearing a distinctive mark indicating that they contain "toxic" mercury. The most appropriate containers for storing mercury are specially designed steel containers, as mercury amalgamates with many other metals, including zinc, copper and silver. Some plastics, such as high-density polyethylene are permeable to mercury vapours and should be avoided.

37. Containers of mercury or mercury compounds should be structurally sound and make possible the environmentally sound storing of such mercury. Seamless flasks and containers are recommended to eliminate the risk of breaches along the seams (QSC, 2003).

38. Two main types of internationally approved mercury storage and transport containers exist: 76-lb flasks and one-metric-ton containers (QSC, 2003). The design type of the container should pass the drop test and the leakproof tests as described in chapters 6.1.5.3 and 6.1.5.4 of the *United Nations Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria* (EU, 2011). For transporting smaller quantities of mercury, other sizes (e.g., 1–16 lbs) and types (e.g., polyethylene, glass) of containers are often used (QSC, 2003).

39. When storing mercury in containers, it is important to leave some "head space". The maximum filling ratio by volume is 80 per cent and the "head space" should therefore be at least 20 per cent in each container to allow for thermal expansion of mercury (EU, 2011). Containers should meet the following criteria:

(a) They should not be damaged from any materials previously stored in them or have contained materials that could adversely react with mercury;

(b) Their structural integrity should be intact;

(c) They should not be excessively corroded;

(d) They should have a protective coating (paint) to prevent corrosion;

(e) They should be gas- and liquid-tight.

40. Appropriate materials for mercury containers include carbon (minimum ASTM A36) and stainless steel (AISI 304 or 316L), which do not react with mercury at ambient temperatures. No protective coating is needed for the inner surface of such containers as long as the mercury to be stored in them meets purity standards for storage as elemental mercury and no water is present inside the container. Protective coatings (e.g., epoxy paint or electroplating) should be applied to all exterior carbon steel surfaces in a manner that does not leave any steel exposed. Coatings should be applied in a manner that minimizes paint blistering, peeling and cracking. Labels including information on the names of the suppliers of the mercury, the origin of the mercury, the level and purity of the mercury, the container number, the gross and net weight, the date when the mercury was injected and a "corrosives" label indicating that the container contains corrosive materials should be affixed to each container (US DOE, 2009). In addition, the label should show that the container meets appropriate national and international technical standards regarding tightness, pressure stability, shock resistance and behaviour when exposed to heat, among other things.

41. When mercury or mercury compounds are stored, they should be as pure as possible in order to avoid chemical reactions and the degradation of containers. A mercury content greater than 99.9 weight per cent is recommended. For lower purity levels (95–99.9 weight per cent), it may be necessary to monitor the condition of containers to detect any degradation over time. Consideration should be given to the period of storage of mercury containing contaminants, as prolonged periods of storage may affect the storage containers.

E. Transport

42. Mercury being transported to the point of use should be properly packaged and labelled. Packaging and labelling for transport are often controlled by national hazardous substances or dangerous goods transportation legislation, which should be consulted first (see part V below, "Guidance on collection, handling, packaging and transport"). If such legislation is lacking or does not provide sufficient guidance, reference materials published by national Governments, the International

Civil Aviation Organization, the International Maritime Organization and the Economic Commission for Europe should be consulted. International standards for the proper labelling and identification of chemical substances and mixtures have been developed, including the following reference materials:

(a) United Nations (2015), *Globally Harmonized System of Classification and Labelling of Chemicals*, sixth revised edition (revised and improved every two years);

(b) Organization for Economic Cooperation and Development (2001), *Harmonised Integrated Classification System for Human Health and Environmental Hazards of Chemical Substances and Mixtures*.

43. Detailed transport requirements are not included in this guidance at this stage, as it is considered more appropriate for the relevant primary source to be consulted for such information.

44. For labelling and packaging other than in transportation, the *Globally Harmonized System of Classification and Labelling of Chemicals* should be taken into account, as appropriate.

NOTE – appropriate images from the GHS may be inserted in the document here, or may be provided as a link to images online.

F. Logging and tracking of mercury movements

45. An inventory of the mercury or mercury compounds kept at a storage site should be created and updated as mercury is added to the facility, used, removed from the facility, or disposed of in accordance with article 11 of the Convention. The inventory sheet should be checked periodically against the containers stored at the facility to ensure its ongoing accuracy. Shipments of mercury or mercury compounds should be recorded, with consideration given to the requirements of article 3 of the Convention that pertain to the import and export of mercury from the country. The maintenance of tracking records is useful for auditing of facilities, and for reporting under article 3 in relation to stocks of mercury greater than 50 metric tons. Annual or periodic reporting of the quantities of mercury stored or used may also be considered to obtain the data needed for reporting under article 3. Guidance on the determination of such stocks is available on the Convention website (www.mercuryconvention.org).

46. Regular inspection of storage areas should be undertaken, focusing especially on damage, spills and deterioration. Clean-up and decontamination should be carried out speedily, but not without alerting the authorities concerned (FAO, 1985; US EPA, 1997).

G. Education and training of staff

47. Personnel engaged in the handling or storage of mercury or mercury compounds should have appropriate and adequate training. Personnel who are not handling the mercury in the storage area but could be exposed by an accidental release should also understand the risks and hazards of mercury and be familiar with a facility's emergency response plans (QSC, 2003). Access to the storage area should be restricted to those with adequate training, including in the recognition of mercury-specific hazards and in the handling of mercury.

48. Employee training in environmentally sound management and workplace health and safety should be provided to, among other things, ensure that employees are protected against mercury releases within the facility, exposure and accidental injury.

49. The basic knowledge that employees need to have includes:

(a) The chemical properties and adverse effects of mercury;

(b) How to identify mercury and segregate it from other hazardous substances;

(c) Occupational safety standards relevant to mercury and how to safeguard their health against mercury exposure;

(d) How to use personal protective equipment, such as body coverings, eye and face protectors, gloves and respiratory protectors;

(e) Labelling and storage standards considered appropriate for the facility or facilities, container compatibility and dating requirements, and closed-container requirements;

(f) How to safely handle mercury using the equipment available at the facility at which they work;

(g) How to use engineering controls to minimize exposure;

(h) How to respond if mercury is accidentally spilled;

(i) How to use mercury vapour monitoring devices to identify possible sources of elevated mercury levels in the facility and to provide workers with the information they require to ensure safety (e.g., when respiratory protection may be warranted).

50. It is important to have worker insurance and employer liability insurance as appropriate under national law.

51. A mercury awareness-raising package developed by UNEP (UNEP, 2008) is recommended for use in employee training. All training materials should be translated into local languages and made accessible to employees.

H. Timetables for repair, testing and maintenance

52. Regular inspections should be undertaken to ensure the facility, including all equipment, is in good condition. Such inspections should include examination of the containers, spill collection areas, floors and walls to ensure there are no mercury releases and the equipment and any coatings are intact. Periodic indoor air monitoring may be considered to check for leaks and protect workers onsite. To detect leaks and protect workers on-site, a continuous indoor air monitoring system may be used, with sensors positioned at ground and head levels, and visual and acoustic alarm systems. When leaks are detected, the operator should immediately take all necessary action to avoid any releases of mercury (EU, 2011). Monitoring equipment should be tested regularly to ensure it is properly calibrated and functioning correctly. All equipment, including monitoring equipment, should be subject to routine maintenance.

53. The inspection schedule may be determined by national regulations or instructions, or by the facility manager. A clear plan for a regular monitoring and repair schedule should be in place before the facility starts operating. Records detailing inspections and maintenance should be kept.

I. Emergency measures, including personal protective equipment

54. Site-specific plans and procedures should be developed for implementing the safety requirements identified for the storage of mercury and mercury compounds in line with national standards and with the approval of relevant safety and environmental management sections of the Government. A workable emergency plan should address public evacuation and procedures to be followed in the event of terrorism, fire and other disastrous events that could result in significant mercury releases both inside and outside the building's perimeter. The plan should be in place and should be implemented immediately in case of accidental spillage or other emergencies (QSC, 2003). A person should be designated who has the responsibility, in emergencies, to authorize any changes to the safety procedures needed to facilitate the work of emergency response personnel. Adequate access to the affected area should be ensured.

55. Emergency response plans or procedures should comply with local, regional and national requirements and include procedures for first responders, including fire department staff, emergency response personnel, ambulance personnel and local hospitals (QSC, 2003). While such plans can vary according to the physical and social conditions of each site, the principal elements of an emergency response plan include the identification of potential hazards; legislation governing emergency response plans; action to be taken in emergency situations, including mitigation measures; personnel training plans; communication targets (fire service, police, neighbouring communities, local government, etc.) and methods in case of emergency; and methods and schedules for the testing of emergency response equipment. Emergency response practice exercises should be conducted.

56. Emergency response plans or procedures should cover a number of different scenarios, which may include but should not be limited to:

(a) Damage to storage containers during handling, including distinctions between minor damage and catastrophic damage (e.g., complete failure of the seal on a drum lid or other closure);

(b) Discovery of container leakage during routine inspections;

(c) Release occurring during repackaging operations;

(d) Damage to the storage facility itself (e.g., due to flood, fire, severe adverse weather or serious accidents that somehow compromise the physical integrity of the facility).

57. For each scenario, response guidance should identify:

(a) The equipment and procedures needed to address the release;

(b) The site official responsible for overseeing the assessment of the situation (i.e., whether it is a minor or major release) and supervising workers in addressing the release or accident;

(c) Notification procedures to other workers at the facility (particularly regarding the need to don personal protective equipment);

(d) When to notify local emergency response personnel for additional support;

(e) When to notify the public, and action the public should take;

(f) When it is appropriate to evacuate non-essential workers from the facility;

(g) When it may become necessary to evacuate all workers from the facility.

58. All equipment necessary to address spills or releases of mercury or mercury compounds should be available on site and in good working order. Such equipment may include sorbent materials, chemical reagent products that can be applied to elemental mercury spills to reduce mobility, shovels and other tools to pick up spilled materials, and extra drums or other containers in which to place cleaned-up materials. Facilities should also have the capacity to contain and manage appropriately any contaminated wash water that may be generated.

59. When an emergency occurs, the first step is to investigate the site. Wearing suitable personal protective equipment, the person in charge should approach cautiously from upwind, secure the scene and identify the hazard. Placards, container labels, shipping documents, safety data sheets, car identification charts and knowledgeable persons on the scene are valuable information sources. The need to evacuate, the availability of human resources and equipment, and possible immediate actions should then be assessed. In order to ensure public safety, a call to an emergency response agency should be made and, as an immediate precautionary measure, the spill or leak area should be isolated by at least 50 metres in all directions. In case of fire, an extinguishing agent suitable for the type of surrounding fire should be used, whereas water should not. For further information, the "Emergency Response Guidebook" (U.S. Department of Transportation, Transport Canada and the Secretariat of Communications and Transportation of Mexico) is a helpful resource.

60. Any spillage of elemental mercury, even in small amounts, should be considered hazardous and should be cleaned up with caution. Spills should be reported to management and the date, time, inspector, location and approximate amount of mercury should be documented and records maintained of such incidences (QSC, 2003). Critical to determining the type of response appropriate for a given mercury spill is evaluating the spill's size and dispersal and whether the necessary clean-up resources and expertise are available. If the spill is small and on a non-porous surface (such as linoleum) or on a porous item that can be thrown away (such as a small rug or mat), it can be cleaned up by the personnel or workers of a facility and disposed of in an environmentally sound manner. If the spill is large or on a rug that cannot be discarded, on upholstery or in cracks or crevices, it may be necessary to hire personnel with suitable professional training, should such personnel not be available at the facility. Large spills involving more than the amount of mercury found in a typical household product should be reported to the local environmental health authorities. If there is any uncertainty as to whether a spill should be classified as "large", the local environmental health authorities should be contacted to be on the safe side. Under certain circumstances outlined in the emergency plan, it may be advisable to obtain the assistance of qualified personnel for professional clean-up or air monitoring, regardless of spill size. Guidance on clean-up of household spills is available (Environment Canada, 2002)[2] and may be adapted for use in other situations. Spills of elemental mercury in the course of commercial activities and in households have the potential to expose workers and the general public to hazardous mercury vapours. In addition, spills are disruptive and costly to clean up. Clean-up procedures for small mercury spills are found in *Spills, Disposal and Site Clean-Up* (US EPA, 2007).

J. Inspection and monitoring

61. Facilities should have adequate monitoring, recording and reporting programmes to ensure that they can meet any national requirements to track mercury quantities as well as potential environmental releases.

62. Monitoring programmes should provide an indication of whether the storage operation is functioning in accordance with its design, and should detect changes in environmental quality (such as any emission or release of mercury or mercury compounds) caused by the operation. The information obtained through monitoring programmes can be used to indicate whether proper management of the stored mercury is being undertaken, to identify potential issues relating to possible mercury releases or exposure to mercury, and to help assess whether amendments to the management approach might be

[2] Available at: https://www.ec.gc.ca/mercure-mercury/default.asp?lang=En&n=D2B2AD47-1.

appropriate. By implementing a monitoring programme, facility managers can identify problems and take appropriate measures to remedy them.

63. It should be noted that a number of continuous mercury measurement systems are commercially available for some types of mercury monitoring. Such monitoring may be required under national or local legislation. Alternatively, suitable monitoring may be undertaken through site sampling in the environment.

V. Guidance on collection, handling, packaging and transport

64. While this section provides specific technical guidance on appropriate handling of mercury, it is imperative that generators (such as recycling facilities which may be producing commodity mercury for use) and storage facilities also consult and adhere to applicable national and local requirements.

65. *Handling:* When handling mercury, it is important to pay particular attention to the prevention of evaporation and spillage of mercury into the environment. Facilities should develop very specific procedures for handling mercury to minimize the possibility of spillage or excessive evaporation losses.

66. *Packaging:* The containers in which mercury and mercury compounds are transported provide the most direct barrier to prevent releases. It is therefore necessary to carefully package mercury and mercury compounds in appropriate containers that have been manufactured in conformity with national and international standards and regulations, including United Nations standards for packaging.

67. For transport and the transboundary movement of mercury, the latest versions of the following documents should be consulted to determine specific requirements:

(a) International Maritime Organization, *International Maritime Dangerous Goods Code* (updated regularly);

(b) International Civil Aviation Organization, *Technical Instructions for the Safe Transport of Dangerous Goods by Air*;

(c) International Air Transport Association (2016), *Dangerous Goods Regulations*;

(d) United Nations (2015), *United Nations Recommendations on the Transport of Dangerous Goods: Model Regulations*.

68. Mercury and mercury compounds should be transported in a safe and environmentally sound manner in order to avoid accidental spills; they should also be tracked during transport until they have reached their final destination. Prior to transport, contingency plans should be prepared in order to minimize environmental impacts associated with vehicle accidents, spills, fires and other potential emergencies. During transport, mercury and mercury compounds should be identified, packaged and transported in accordance with the relevant national regulations on the transport of dangerous goods, which are generally based on the *United Nations Recommendations on the Transport of Dangerous Goods: Model Regulations* (Orange Book).

69. Companies transporting mercury or mercury compounds within their own countries should hold authorization to transport dangerous goods, and their personnel should be qualified or certified to handle dangerous goods in accordance with applicable national and local rules and regulations. Transporters should manage mercury in a way that prevents breakage, environmental releases and exposure to moisture.

70. To ensure that releases from the handling and transport of mercury or mercury compounds are kept to a minimum, it is important to raise the awareness of the parties concerned (e.g., transporters, recyclers and treatment operators) about the risks of mercury. Such awareness-raising can be achieved through training activities, such as seminars, that can provide information about new systems and regulations, as well as opportunities for information exchange, the preparation and distribution of leaflets, and the dissemination of information via the Internet.

A. Health and safety

71. Two key aspects of the environmentally sound storage of mercury and its compounds are the development and implementation of (a) public health and safety activities; and (b) worker health and safety activities that prevent and minimize exposure to mercury and its compounds.

B. Public health and safety

72. Addressing public safety is dependent on appropriate reporting of both routine and accidental mercury releases by facility operators. The timely reporting of such information to local authorities requires both routine and emergency procedures for reporting releases, including to civil authorities and local emergency responders, to be clearly established before a facility begins operation. People living and working near storage facilities may also be exposed to environmental health and accident risks. Such risks relate mainly to emissions and releases from the work undertaken at the facility, as well as transport to and from the facility. Adequate measures are necessary to prevent and minimize impacts on human health and the environment. Monitoring programmes may help in identifying problems and taking appropriate measures to remedy them. Such programmes could include the monitoring of any emissions or releases of mercury from the facility to determine whether these could result in any exposure of the local population. Facility operators may wish to host community awareness forums to address questions concerning facility siting, operations and emergency response plans.

C. Worker health and safety

73. Employers should ensure the health and safety of all employees while they are at work. Every employer should obtain and maintain insurance, under an approved policy from an authorized insurer, providing a sufficient level of coverage in case of liability (including those that may require compensation) for bodily illness or injury sustained by employees arising out of and in the course of their employment, in accordance with national law. Facility-specific health and safety plans should be in place at all facilities handling mercury or mercury compounds to ensure the protection of everyone in and around such facilities. Such plans should be developed by trained health and safety professionals with experience in managing health risks associated with mercury.

74. The protection of workers who handle mercury or mercury compounds, and of the general public, can be achieved by the following means:

(a) Restricting access to facilities to authorized personnel;

(b) Ensuring that occupational exposure limits for hazardous substances are not exceeded by making sure that all personnel use appropriate protective equipment;

(c) Ensuring appropriate ventilation of facilities to minimize risk from exposure to volatile substances or substances that can become airborne;

(d) Ensuring that facilities comply with all national and regional laws on workplace health and safety.

75. Guideline values for mercury concentrations in drinking water and ambient air established by WHO are 0.006 mg/L for inorganic mercury and 1 $\mu g/m^3$ for inorganic mercury vapour (WHO, 2006; WHO Regional Office for Europe, 2000). Governments are encouraged to monitor air and water in order to protect human health, especially near sites where activities using mercury take place. Some countries have established permissible levels of mercury in the working environment (e.g., 0.025 mg/m^3 Hg for inorganic mercury, excluding mercury sulphide, and 0.01 mg/m^3 Hg for alkylmercury compounds in Japan). Management operations should be conducted so as to satisfy any applicable requirements regarding permissible levels of mercury in the working environment, and facilities where such operations are conducted should be designed and operated so as to minimize mercury releases to the environment as far as is technically possible.

D. Standards for the identification of stocks

76. Guidance on the identification of stocks of mercury and mercury compounds was adopted on a provisional basis by the intergovernmental negotiating committee at its seventh session. Following formal adoption by the Conference of the Parties, the final version of that guidance will be referenced in the present draft guidelines.

References and other resources

Canadian Centre for Occupational Health and Safety, undated. *OHS Fact Sheets: Mercury*. Available from: http://www.ccohs.ca/oshanswers/chemicals/chem_profiles/mercury.html.

European Union (EU) (2011). Council Directive 2011/97/EU of 5 December 2011 amending Directive 1999/31/EC as regards specific criteria for the storage of metallic mercury considered as waste. Available from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:328:0049:0052:EN:PDF.

International Air Transport Association (2016), *Dangerous Goods Regulations*.

International Civil Aviation Organization. *Technical Instructions for the Safe Transport of Dangerous Goods by Air*. Latest version available from https://www.icao.int/safety/DangerousGoods/Pages/technical-instructions.aspx.

International Labour Organization (2001). *Mercuric Oxide*, International Occupational Safety and Health Information Centre.

International Maritime Organization. *International Maritime Dangerous Goods Code*. Latest version available from http://www.imo.org/en/Publications/IMDGCode/Pages/Default.aspx.

Organization for Economic Cooperation and Development (2001). *Harmonised Integrated Classification System for Human Health and Environmental Hazards of Chemical Substances and Mixtures*.

Quicksilver Caucus (QSC) (2003). *Mercury Stewardship Best Management Practices*, October (available on request).

United Nations (2015a). *United Nations Recommendations on the Transport of Dangerous Goods: Model Regulations* (19th revised edition).

United Nations (2015b). *Globally Harmonized System of Classification and Labelling of Chemicals*, sixth revised edition. Available from https://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev06/English/ST-SG-AC10-30-Rev6e.pdf.

United Nations Development Programme (UNDP) "Guidance on the Cleanup, Temporary or Intermediate Storage, and Transport of Mercury Waste from Health Care Facilities." Available at: https://noharm-global.org/sites/default/files/documents-files/1030/GEF_Guidance_Cleanup_Storage_Transport_Mercury.pdf.

United Nations Food and Agriculture Organization (FAO) (1985). "Guidelines for the Packaging and Storage of Pesticides". Available at: http://www.bvsde.paho.org/bvstox/i/fulltext/fao12/fao12.pdf.

United States Department of Energy (US DOE) (2009). *US Department of Energy Interim Guidance on Packaging, Transportation, Receipt, Management, and Long-Term Storage of Elemental Mercury*. Available at: https://energy.gov/sites/prod/files/2014/05/f15/Elementalmercurystorage%20Interim%20Guidance%20%28dated%202009-11-13%29.pdf**.**

United States Department of Transportation, Transport Canada and Secretariat of Communications and Transportation of Mexico (2016). "Emergency Response Guidebook". 2016 edition available from https://www.tc.gc.ca/eng/canutec/guide-menu-227.htm.

United States Environmental Protection Agency (US EPA) (1997). *Sensitive Environments and the Siting of Hazardous Waste Management Facilities*.

World Chlorine Council guidance available at the following three webpages: http://www.worldchlorine.org/publications/unep-chlor-alkali-mercury-partnership/mercury-handling-during-normal-plant-operations/;

http://www.worldchlorine.org/wp-content/uploads/2015/08/Env-Prot-19-Edition-1.pdf;

http://www.worldchlorine.org/publications/unep-chlor-alkali-mercury-partnership/reporting-on-mercury-use/.

World Health Organization (WHO) Regional Office for Europe (2000). *Air Quality Guidelines. 2nd ed*. Available at: http://www.euro.who.int/__data/assets/pdf_file/0004/123079/AQG2ndEd_6_9Mercury.PDF.

World Health Organization (2006). *Guidelines for Drinking-water Quality. 3rd edition, incorporating first and second addenda*. Available from: http://www.who.int/water_sanitation_health/en/.