

The 2013 Minamata Convention and Protection of the Arctic Environment: Mercurial Promises and Challenges

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Abstract: The Minamata Convention, adopted in October 2013 and aimed in part at controlling the long-range transport of mercury into the Arctic, is reviewed from two perspectives. First, ten promising aspects of the Convention are highlighted. Promises include, among others: committing Parties to phase-out mercury mining; establishing a phase-out date of 2020 for many mercury-added products; encouraging the phase-down of mercury uses and releases in dentistry; prohibiting and restricting the use of mercury in listed manufacturing processes; and requiring Parties to control atmospheric emissions from listed point sources, such as coal-fired power plants and waste incineration facilities. Second, seven implementation challenges are discussed. Among the challenges are: reaching rigorous ratification of the Convention; ensuring timely phase-outs; achieving actual reductions in mercury emissions and releases; ensuring adequate financing; and sorting out relationships with other conventions and international mercury-related initiatives.

Key Words: Minamata Convention; Mercury pollution; Arctic environment; Chemicals and wastes; Human health

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I. Introduction

The Minamata Convention on Mercury¹ was adopted on 10 October 2013 at a diplomatic conference in Kumamoto, Japan. The conclusion of the Convention followed upon five negotiating sessions, 2010-2013, by the Intergovernmental Negotiating Committee.² The Convention draws its name from the city of Minamata where methylmercury discharged from a chemical factory caused a serious neurological disorder to local inhabitants consuming contaminated seafood. The problem was officially recognized in 1956 and scientists subsequently named the ailment as Minamata Disease.³

The Convention is a global agreement spurred by the multiple sources of mercury pollution and long-range mercury transports around the world. Humans can neither create nor destroy mercury, though anthropogenic activities can release it from the earth's crust and release it into the environment.⁴ Total anthropogenic emissions of mercury to the atmosphere in 2010 are estimated to be 1960 tonnes⁵ with Asia considered to be the main source region. East and Southeast Asia are thought to contribute about 40 per cent of the global total and South Asia a further 8 per cent.⁶

Numerous sectoral sources of mercury air emissions exist. The four largest contributors are: artisanal and small-scale gold mining (about 727 tonnes per year, 37 per cent of global total); coal burning (474 tonnes, 24 per cent); primary production of non-ferrous metals (193 tonnes, 10 per cent); and cement production

1 Minamata Convention on Mercury, 10 October 2013, at <http://www.mercuryconvention.org/Convention/tabid/3426/Default.aspx>, 15 March 2015.

2 IISD Reporting Services, Summary of the Diplomatic Conference of Plenipotentiaries on the Minamata Convention on Mercury and Its Preparatory Meeting: 7-11 October 2013, *Earth Negotiations Bulletin*, Vol. 28, No. 27, 2013, p. 3.

3 Japan, Ministry of the Environment, *Lessons from Minamata Disease and Mercury Management in Japan*, Tokyo: Environmental Health and Safety Division, Environmental Health Department, September 2013, at http://www.env.go.jp/chemi/tmms/pr-m/mat01/en_full.pdf, 15 March 2015.

4 Lee Bell, Joe DiGangi and Jack Weinberg, *An NGO Introduction to Mercury Pollution and the Minamata Convention on Mercury*, Chicago: IPEN, 2014, p. 11.

5 United Nations Environment Programme (UNEP), *Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport*, Geneva, Switzerland: UNEP Chemicals Branch, 2013, p. 9.

6 UNEP, *Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport*, Geneva, Switzerland: UNEP Chemicals Branch, 2013, p. 11.

(177 tonnes, 9 per cent).⁷ Other human sources include, among others, large-scale gold production, oil refining, contaminated sites, the chlor-alkali industry, consumer product waste and cremation (dental amalgam).⁸

Total anthropogenic releases of mercury to water in 2010 is estimated at 1000 tonnes at a minimum. The three largest sources are: artisanal and small-scale gold mining (about 800 tonnes); deforestation (260 tonnes); and industrial sites (185 tonnes).⁹

Negotiation of the Minamata Convention was substantially driven by Arctic environmental and health concerns. About 100 tonnes of mercury are estimated to enter the Arctic Ocean from the air each year, while nearly another 100 tonnes is thought to inflow from the Atlantic and Pacific Oceans, rivers and coastal erosion.¹⁰ Levels of mercury in upper trophic level marine animals, such as the beluga, ringed seal, polar bear and birds of prey, have shown an overall ten-fold increase over the past roughly 150 years.¹¹ Some top marine predators, such as toothed whales and polar bears, have exhibited mercury levels in their tissues and organs believed to exceed thresholds for biological effects.¹² Mercury levels in the endangered ivory gull, a scavenger of marine mammal carcasses, have increased by over 40 times in the period 1877 to 2007 and a precipitous population decline may be linked in part to decreasing reproductive success because of mercury exposure.¹³ A crash in the Arctic fox population on Mednyi Island, located off the Russian Federation, has been posited as connected to the elevated mercury levels in foxes which depend on coastal marine life as a sole food source.¹⁴ Considerable uncertainty surrounds

7 UNEP, *Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport*, Geneva, Switzerland: UNEP Chemicals Branch, 2013, p. 9.

8 UNEP, *Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport*, Geneva, Switzerland: UNEP Chemicals Branch, 2013, p. 10.

9 UNEP, *Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport*, Geneva, Switzerland: UNEP Chemicals Branch, 2013, p. iii.

10 Arctic Monitoring and Assessment Programme (AMAP), *Arctic Pollution 2011*, Oslo, Norway: AMAP, 2011, p. iv.

11 AMAP, *AMAP Assessment 2011: Mercury in the Arctic*, Oslo, Norway: AMAP, 2011, p. xii.

12 AMAP, *AMAP Assessment 2011: Mercury in the Arctic*, Oslo, Norway: AMAP, 2011, p. xiii; Igor Lehnher, Methylmercury Biochemistry: A Review with Special Reference to Arctic Aquatic Ecosystems, *Environmental Reviews*, Vol. 22, 2014, pp. 229, 237.

13 Alexander L. Bond, Keith A. Hobson and Brian A. Branfireun, Rapidly Increasing Methyl Mercury in Endangered Ivory Gull (*Pagophila Eburnea*) Feathers over a 130 Year Record, *Proceedings of the Royal Society B*, Vol. 282, No. 20150032, 2015, pp. 1~8.

14 Natalia Bocharova et al., Correlates between Feeding Ecology and Mercury Levels in Historical and Modern Arctic Foxes (*Vulpes lagopus*), *PLoS ONE*, Vol. 8, Issue 5, 2013, pp. 1~11.

the risk of high mercury levels when combined with other stressors, particularly persistent organic pollutants and climate change.¹⁵

An additional emerging concern is the possibility for substantial increases in mercury levels in the Arctic due to climate change. Melting sea ice, glaciers and thawing permafrost may release sequestered mercury into the aquatic environment.¹⁶

Human health concerns, such as effects in brain development and on reproductive, immune and cardiovascular systems, are especially prevalent for coastal communities relying on marine-based diets.¹⁷ For example, blood mercury concentrations in over 90 per cent of women of child-bearing age in some areas of Greenland have been found to exceed guidelines for safe levels of mercury, and at Nunavut, Canada study found that 59 per cent of children surveyed had a methylmercury intake that exceeded guideline safe levels.¹⁸

The Minamata Convention's preamble itself emphasizes the special need to address mercury levels in the Arctic. The text specifically notes "the particular vulnerabilities of Arctic ecosystems and indigenous communities because of bio-magnification of mercury and contamination of traditional foods..."¹⁹

Various political factors played a role in the move from voluntary approaches to addressing mercury to a legally-binding agreement.²⁰ Those factors included: the knowledge-based leadership of the UNEP Secretariat; the power-based leadership of the United States with the Obama administration strongly supporting a legal agreement on mercury; and interest-based realities with many developing countries perceiving new opportunities for funding and technology transfers.²¹ The Arctic Council's Arctic Monitoring and Assessment Programme (AMAP) also built the

15 AMAP, *AMAP Assessment 2011: Mercury in the Arctic*, Oslo, Norway: AMAP, 2011, p. 1.

16 See J.F. Provencher et al., Mercury and Marine Birds in Arctic Canada: Effects, Current Trends, and Why We Should Be Paying Closer Attention, *Environmental Reviews*, Vol. 22, 2014, pp. 244, 247.

17 AMAP, *AMAP Assessment 2011: Mercury in the Arctic*, Oslo, Norway: AMAP, 2011, p. xiii.

18 AMAP, *AMAP Assessment 2011: Mercury in the Arctic*, Oslo, Norway: AMAP, 2011, p. 30.

19 Minamata Convention, Preamble.

20 Steinar Andreson, Kristin Rosendal and Jon Birger Skjaereth, Why Negotiate a Legally Binding Mercury Convention?, *International Environmental Agreements: Politics, Law and Economics*, Vol. 13, Issue 4, 2013, p. 425.

21 Steinar Andreson, Kristin Rosendal and Jon Birger Skjaereth, Why Negotiate a Legally Binding Mercury Convention?, *International Environmental Agreements: Politics, Law and Economics*, Vol. 13, Issue 4, 2013, pp. 434–437.

case over time for a legally-binding agreement.²²

The extent to which the new Mercury Convention will curb the transport of mercury into the Arctic remains to be seen with two images largely capturing the governance realities. Mercurial promises is one apt descriptor as the Convention offers many “rays of hope”, such as requiring a phase-out of mercury mining and many mercury containing products. Mercurial challenges is a second reality with various implementation challenges looming on the horizon, such as reaching rigorous ratification of the Convention; achieving actual reductions in mercury air emissions and land/water releases; and ensuring adequate financing for capacity-building and technology transfers. A review of key promises and major challenges follows.

II. Mercurial Promises

The Minamata Convention, having as an overall objective in Article 1 the protection of human health and the environment from anthropogenic emissions and releases of mercury, offers many promising “beams” for controlling mercury pollution.²³ Ten progressions are summarized here.

A. Phasing-out Primary Mercury Mining

Article 3 of the Convention requires the phase-out of mercury mining. No new mercury mines are allowed for a Party after entry into force of the Convention for it. Mining conducted within a Party’s territory at the date of entry into force of the Convention must be phased out within 15 years.

The promising direction is obviously dimmed somewhat by the date of entering into force provision. The phase-out date is not linked to the overall entry into force date of the Convention but is dependent on an individual State’s formal adoption of the Convention. This leaves room for a State to drag its feet in ratifying the

22 AMAP, *AMAP Assessment 2002: Heavy Metals in the Arctic*, Oslo, Norway: AMAP, 2005; AMAP, *AMAP Assessment 2011: Mercury in the Arctic*, Oslo, Norway: AMAP, 2011, p. xii; AMAP/UNEP, *Technical Background Report for the Global Mercury Assessment 2013*, Oslo, Norway and Geneva, Switzerland: AMAP and UNEP Chemicals Branch, 2013.

23 For a further recent review, see Henrik Hallgrim Eriksen and Franz Xavier Perrez, *The Minamata Convention: A Comprehensive Response to a Global Problem*, *Review of European Community & International Environmental Law*, Vol. 23, Issue 2, 2014, p. 195.

Convention in order to prolong the primary mining timeline. China in particular had pushed hard in negotiations to allow mercury mining to continue for a limited period in order to provide raw materials for the production of vinyl chloride monomer and other products.²⁴

B. Limiting Trade of Mercury

The Convention prohibits exports of mercury except when an importing Party or non-Party has given its written consent.²⁵ Export to a Party may only occur if for a use allowed to the importing Party under the Convention or for environmentally sound interim storage.²⁶ Export to a non-Party would have the same restrictions with an additional requirement that the non-Party must certify it has measures in place to ensure the protection of human health and the environment.²⁷

The Convention restricts mercury imports from non-Parties.²⁸ Parties are not to allow such imports unless the non-Party has provided certification that the mercury is not from a prohibited source. Those sources are from primary mercury mining that is no longer allowed in a country or mercury waste from decommissioned chlor-alkali facilities. A limited exception to the certification requirement is provided in Article 3.9 and the exception was specifically insisted upon by the United States.²⁹ The exception allows a Party to waive the certification requirement provided that it maintains comprehensive restrictions on the export of mercury and has domestic measures in place to ensure that imported mercury is managed in an environmentally sound manner.

C. Phasing-out the Manufacture, Import or Export of Mercury-added Products

24 Henrik Hallgrim Eriksen and Franz Xaver Perrez, The Minamata Convention: A Comprehensive Response to a Global Problem, *Review of European Community & International Environmental Law*, Vol. 23, Issue 2, 2014, p. 199.

25 Minamata Convention, Article 3.6.

26 Henrik Selin, Global Environmental Law and Treaty-Making on Hazardous Substances: The Minamata Convention and Mercury Abatement, *Global Environmental Politics*, Vol. 14, Issue 1, 2014, pp. 1, 9.

27 Minamata Convention, Article 3(6)(b).

28 Minamata Convention, Article 3.8.

29 Henrik Hallgrim Eriksen and Franz Xaver Perrez, The Minamata Convention: A Comprehensive Response to a Global Problem, *Review of European Community & International Environmental Law*, Vol. 23, Issue 2, 2014, pp. 204~205.

The Convention establishes a phase-out date of 2020 for mercury-added products listed in Part 1 of Annex A.³⁰ Those products include: batteries except for certain button cell batteries with a mercury content less than 2 per cent; switches and relays; some fluorescent lamps; high-pressure mercury vapour lamps; cosmetics and soaps; pesticides, biocides and topical antiseptics; and non-electric measuring devices including barometers, thermometers and sphygmomanometers.

Annex A of the Convention excludes selected products from the phase-out date. They include: products essential for civil protection and military uses; products used in traditional or religious practices; and vaccines containing thiomersal as preservatives. The latter exclusion was supported by the World Health Organization (WHO) as thiomersal is added to vaccines as a preservative to remove the need for refrigeration, thereby facilitating the access to vaccines in remote areas.³¹

D. Phasing-down the Use of Dental Amalgam

Pursuant to Article 4.3 of the Convention, each Party is required to take two or more measures from a list of nine measures to phase-down the use of mercury in dental amalgam.³² Those measures include, among others: setting national objectives for cavity prevention and health promotion thereby minimizing the need for dental fillings; promoting the use of mercury-free alternatives to dental restoration; promoting research and development of mercury-free fillings; restricting the use of dental amalgam; and promoting the use of best environmental practices in dental facilities to reduce mercury releases.

E. Prohibiting and Restricting the Use of Mercury in Listed Manufacturing Processes

The Convention prohibits the use of mercury or mercury compounds in manufacturing processes listed in Annex B, Part I after the phase-out date specified in the

30 Minamata Convention, Article 4.

31 Henrik Selin, Global Environmental Law and Treaty-Making on Hazardous Substances: The Minamata Convention and Mercury Abatement, *Global Environmental Politics*, Vol. 14, Issue 1, 2014, p. 10.

32 The measures are set out in Annex A, Part II of the Convention.

Annex.³³ Use of mercury in chlor-alkali production must cease by 2025, while use of mercury as a catalyst in acetaldehyde production must end by 2018.

The Convention requires Parties to restrict uses of mercury in manufacturing processes listed in Annex B, Part II in accordance with the measures set out in the Annex.³⁴ Reduction measures are established for three mercury using processes, namely: vinyl chloride monomer production; production of sodium or potassium methylate or ethylate; and polyurethane production. Examples of vinyl chloride monomer measures include: reducing the use of mercury in terms of per unit of production by 50% by the year 2020 against 2010 use; taking measures to reduce emissions and releases of mercury to the environment; and not allowing the use of mercury five years after the Conference of the Parties has established that mercury-free processes have become technically and economically feasible. A fixed phase-out date for the use of mercury in vinyl chloride monomer production was not included due to the opposition of China which still relies on that production method.³⁵

F. Calling for National Action Plans to Reduce/Eliminate Mercury Uses and Releases from Artisanal and Small-Scale Gold Mining

Pursuant to Article 7 of the Convention, each Party that determines the level of artisanal and small-scale gold mining and processing in its territory is more than insignificant must develop and implement a national action plan. Annex C of the Convention sets out the required elements of national action plans, such as: national objectives and reduction targets; eliminating open burning of amalgam; strategies for promoting the reduction of emissions and releases of mercury; a public health strategy on the exposure of artisanal and small-scale gold miners and their communities; and strategies to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age.

The Convention leaves considerable flexibility as to when a national action plan must be submitted to the Secretariat. Each Party is required to submit its national action plan no later than three years after entry into force of the Con-

33 Minamata Convention, Article 5.2.

34 Minamata Convention, Article 5.3.

35 Henrik Hallgrim Eriksen and Franz Xaver Perrez, *The Minamata Convention: A Comprehensive Response to a Global Problem*, *Review of European Community & International Environmental Law*, Vol. 23, Issue 2, 2014, p. 205.

vention for it or three years after the Party notifies the Secretariat of the more than insignificant mining and processing activities in its territory, whichever is later.³⁶ The Convention does not define insignificant.

Even without a national action plan, Parties are required to take reduction steps. Each Party, having within its territory artisanal and small-scale gold mining and processing in which mercury amalgam is used to extract gold from ore, must take steps to reduce and where feasible to eliminate the use of mercury and emissions and releases into the environment of mercury from such mining and processing.³⁷

G. Requiring Parties to Control Atmospheric Emissions from Listed Point Sources

The Convention lists five point source categories from which air emission control measures must be taken.³⁸ The five categories are: coal-fired power plants; coal-fired industrial boilers; smelting and roasting processes used in the production of non-ferrous metals (lead, zinc, copper and industrial gold); waste incineration facilities; and cement clinker production facilities.

The Convention sets out control measures for new sources, defined as those facilities constructed or substantially modified at least one year after the date of entry into force of the Convention for the Party concerned.³⁹ For new sources, each Party must require the use of best available techniques and best environmental practices to control and, where feasible, reduce emissions as soon as practicable but no later than five years after the date of entry into force of the Convention for that Party.⁴⁰

For existing sources, each Party is required to implement one or more of five listed measures.⁴¹ Those measures are: a quantified control or reduction goal; emission limit values; use of best available techniques and best environmental practices; a multi-pollutant control strategy; and alternative measures to reduce emissions from relevant sources. Each Party must take measures as soon as practicable

36 Minamata Convention, Article 7.3(b).

37 Minamata Convention, Article 7.2.

38 Minamata Convention, Annex D.

39 Minamata Convention, Article 8.2(c).

40 Minamata Convention, Article 8.4.

41 Minamata Convention, Article 8.5.

but no more than 10 years after entry into force of the Convention for it.

H. Mandating Control Measures for Mercury Releases to Land or Water

The Convention requires Parties to take measures to control releases of mercury to land or water from relevant point sources not covered by other provisions of the Convention.⁴² Such measures must include one or more of four listed options: release limit values; use of best available techniques and best environmental practices; a multi-pollutant control strategy; and alternative measures to reduce emissions from relevant sources.⁴³

I. Ensuring Environmentally Sound Management of Mercury Wastes

The Convention requires each Party to take appropriate measures to ensure mercury waste is managed in an environmentally sound manner.⁴⁴ Management efforts must take into account guidelines developed under the Basel Convention⁴⁵ and be in accord with requirements to be adopted in the future by the Conference of the Parties through an additional annex. Mercury wastes are only to be recovered, recycled or reclaimed for a use allowed to a Party under the Convention.⁴⁶ For Parties to the Basel Convention, transboundary transports of mercury wastes for the purpose of environmentally sound disposal must be in conformity with that Convention. Where the Basel Convention does not apply to a transboundary transport, a Party is only to allow such transport after taking into account international rules, standards and guidelines.⁴⁷

The Convention also addresses the environmentally sound management of contaminated sites. Each party must endeavor to identify and assess sites contaminated with mercury or mercury compounds.⁴⁸ The Conference of the Parties is given a mandate to adopt guidance on managing contaminated sites that may include suggestions relating to public engagement, human health and environmental risk

42 Minamata Convention, Article 9.4.

43 Minamata Convention, Article 9.5.

44 Minamata Convention, Article 11.

45 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 22 March 1989, *U.N.T.S.*, Vol. 1673, p. 57.

46 Minamata Convention, Article 11.3(b).

47 Minamata Convention, Article 11.3(c).

48 Minamata Convention, Article 12.1.

assessments and risk management options.⁴⁹

J. Encouraging International Cooperation in Mercury-related Research and Monitoring

The Convention urges Parties to cooperate in improving research and monitoring on multiple fronts.⁵⁰ For example, Parties are encouraged to strengthen monitoring of mercury levels in vulnerable populations and in biotic media, such as fish, marine mammals, sea turtles and birds. Research collaborations on the technical and economic availability of mercury-free products and processes and on best available techniques and practices for reducing mercury emissions and releases are further encouraged.

III. Mercurial Challenges

Seven implementation challenges stand out in the wake of the new Minamata Convention.

A. Reaching Rigorous Ratification of the Convention

The Convention requires 50 ratifications/acceptances for entry into force.⁵¹ As of 27 March 2015 there were 128 signatories but only 10 Parties.⁵² Perhaps surprisingly, the United States became the first Party to the Convention by depositing its instrument of acceptance on November 6, 2013.⁵³ The Convention was accepted as an executive agreement thereby bypassing the normal requirement for Senate ratification.⁵⁴ How quickly other countries follow suit in formally adopting the Convention remains to be seen.

49 Minamata Convention, Article 12.3

50 Minamata Convention, Article 19.

51 Minamata Convention, Article 31.

52 At <http://www.mercuryconvention.org>, 25 March 2015.

53 U.S. Department of State, Office of the Spokesperson, Media Note, PRN 2013/1353, United States Joins Minamata Convention on Mercury, 6 November 2013, at <http://www.state.gov/r/pa/prs/ps/2013/11/217295.htm>, 15 March 2015.

54 Email from Wil Burns, 7 November 2013, Minamata Convention: U.S. in the Lead? (e-mail communication on file with the author).

B. Ensuring Timely Phase-outs

The phase-out dates of 2020 for mercury-added products listed in Annex A, Part 1 and of 2025 and 2018 for mercury use in chlor-alkali and acetaldehyde production respectively are not written in stone.⁵⁵ Article 6 of the Convention allows Parties to register for initial five-year exemptions from the phase-out dates. Parties may thereafter request further five-year extensions through a decision of the Conference of the Parties.

C. Achieving Reductions in Mercury Emissions and Releases

Considerable flexibility is left to Parties in addressing emissions and releases.⁵⁶ For mercury air emissions, no overall obligations exists to reduce emissions but only to control emissions.⁵⁷ For new sources, application of best available techniques and best environmental practices will be required,⁵⁸ but guidance on best available techniques and best environmental practices is left to be adopted at the first meeting of the Conference of the Parties,⁵⁹ and emission reduction is only required “when feasible”.⁶⁰ For existing sources, each Party is required to take at least one control measure but there is substantial discretion allowed in implementation as a Party may take into account its national circumstances and “the economic and technical feasibility and affordability of the measures.”⁶¹ The Convention has been criticized for the lack of emission limit value and/or quantified emission reduction targets for major sources.⁶²

For the five point sources of mercury emissions covered by the Convention,

55 Henrik Selin, Global Environmental Law and Treaty-Making on Hazardous Substances: The Minamata Convention and Mercury Abatement, *Global Environmental Politics*, Vol. 14, Issue 1, 2014, p. 10.

56 Noelle E. Selin, Global Change and Mercury Cycling: Challenges for Implementing a Global Mercury Treaty, *Environmental Toxicology and Chemistry*, Vol. 33, Issue 6, 2014, p. 1202.

57 Aleksandra Tomczak, Minamata Convention on Mercury – What Does It Mean for Coal?, *Cornerstone Magazine*, Vol. 1, Issue 1, Spring 2013, pp. 27–28.

58 Minamata Convention, Article 8.4.

59 Minamata Convention, Article 8.8(a).

60 Minamata Convention, Article 8.4.

61 Minamata Convention, Article 8.5.

62 Lesley Sloss, The Minamata Convention – What It May Mean for Coal, at <http://www.iea-coal.org.uk/site/2010/publications-section/newsletter-information/current-newsletter2/the-minamata-convention?>, 15 March 2015.

not all such sources will necessarily be subject to control. Thresholds of determining which point source facilities are subject to controls have yet to be determined with the Conference of the Parties when required to provide guidance on threshold criteria “as soon as practicable.”⁶³ Parties may establish their own criteria, for example, megawatt capacity of a coal-fired plant or tonnage of waste incinerated per hour or day by waste incineration facilities, to identify covered sources so long as those criteria for any category includes at least 75 per cent of the emissions from that category.⁶⁴

Further flexibilities also stand out in relation to mercury air emissions. Each Party is given up to five years after entry into force of the Convention for it to impose controls on new sources and 10 years for existing sources. Preparation of a national plan setting out control measures and expected targets and outcomes is optional.⁶⁵

A further air emission control limitation is the exclusion of some point sources sectors from control requirements. Oil, gas and iron and steel facilities are not covered by the Convention.⁶⁶

Regarding land and water releases of mercury, each Party is required to identify relevant point source categories of mercury releases within three years after entry into force of the Convention for it.⁶⁷ However, only measures to control releases are required not reduction.⁶⁸ Parties may choose one or more of four suggested measures: setting release limit values; requiring the use of best available techniques and best environmental practices; adoption of a multi-pollutant control strategy; and imposition of alternative measures.⁶⁹ Preparation of a national plan setting out control measures and expected targets and outcomes is optional.⁷⁰

63 Minamata Convention, Article 8.9.

64 Minamata Convention, Article 8.2(b).

65 Minamata Convention, Article 8.3.

66 IISD Reporting Services, Summary of the Diplomatic Conference of Plenipotentiaries on the Minamata Convention on Mercury and Its Preparatory Meeting: 7-11 October 2013, *Earth Negotiations Bulletin*, Vol. 28, No. 27, 2013, p. 23.

67 Minamata Convention, Article 9.3.

68 Minamata Convention, Article 9.4.

69 Minamata Convention, Article 9.5.

70 Minamata Convention, Article 9.4.

D. Protecting Human Health

The Minamata Convention may be viewed as progressive in specifically addressing health aspects of mercury exposures,⁷¹ but the Convention has been criticized for its lack of legally-binding requirements on that front.⁷² Article 16 of the Convention merely encourages various efforts to deal with health issues. For example, Parties are encouraged to promote: the development and implementation of strategies and programmes to identify and protect populations at risk, particularly vulnerable populations; science-based educational and preventative programmes on mercury occupational exposures; and health care services for affected populations.

E. Ensuring Adequate Financing

The Convention does offer hope in supporting developing countries and economies in transition in implementing mercury control commitments through a two-pronged financial mechanism.⁷³ The Convention mandates the creation of a Global Environment Facility (GEF) Trust Fund and a specific international programme to support capacity-building and technical assistance.⁷⁴

How effective financing will be remains to be seen. Funding is to be on a voluntary basis.⁷⁵ Enhancement of multilateral, regional and bilateral assistance to developing country Parties is encouraged⁷⁶ and each Party undertakes to provide, within its capabilities, resources to support national implementation of the Convention.⁷⁷ The Conference of the Parties is required to work out the financial details

71 Rebecca Kessler, *The Minamata Convention on Mercury: A First Step toward Protecting Future Generations*, *Environmental Health Perspectives*, Vol. 121, No. 10, 2013, pp. A304, A308.

72 UN Human Rights, Office of the High Commissioner for Human Rights, Press Release, *Minamata Convention on Mercury: UN Experts Call for a Full Global Response to a Global Scourge*, 11 October 2013, at <http://ieenvironment.org/2013/10/11/minamata-convention-on-mercury-un-experts-call-for-a-full-global-response-to-a-global-scourge/>, 15 March 2015.

73 Henrik Hallgrim Eriksen and Franz Xaver Perrez, *The Minamata Convention: A Comprehensive Response to a Global Problem*, *Review of European Community & International Environmental Law*, Vol. 23, Issue 2, 2014, pp. 207~208.

74 Minamata Convention, Article 13.6.

75 Henrik Selin, *Global Environmental Law and Treaty-Making on Hazardous Substances: The Minamata Convention and Mercury Abatement*, *Global Environmental Politics*, Vol. 14, Issue 1, 2014, p. 15.

76 Minamata Convention, Article 13.3.

77 Minamata Convention, Article 13.1.

of the mechanism including the provision of guidance of the GEF Trust Fund on priorities and eligibilities for funding⁷⁸ and deciding on the hosting institution for the specific funding programme including its duration.⁷⁹

A resolution on financial arrangements, adopted by the Conference of Plenipotentiaries on the Minamata Convention in October 2013, has tasked the Intergovernmental Negotiating Committee (INC) with further developing financial details before the first meeting of the Conference of the Parties.⁸⁰ The INC is encouraged to: develop a draft memorandum of understanding between the GEF and Conference of the Parties; issue guidance on priorities and eligibilities for GEF Trust Fund support; and develop a proposal for the hosting institution of the specific international assistance programme. At the sixth session of the INC, held in Bangkok, 3-7 November 2014, countries agreed to establish an *ad hoc* working group of experts on financing to further address financial options.⁸¹

F. Ensuring Implementation and Compliance

The Convention might be described as being “luke warm” on implementation responsibilities. Each Party is left discretion as to whether a national implementation plan will be developed and executed and whether such a plan will be transmitted to the Secretariat.⁸² Each Party is required to report to the Conference of the Parties on implementation measures and challenges with the Conference of the Parties at its first meeting to decide upon the timing and format for reporting.⁸³

An Implementation and Compliance Committee is to be established pursuant to Article 15 of the Convention but the Committee will have limited review powers.⁸⁴ The Committee is to be facilitative in nature and may review compliance

78 Minamata Convention, Article 13.7.

79 Minamata Convention, Article 13.9.

80 Conference of Plenipotentiaries on the Minamata Convention on Mercury, Final Act of the Conference of Plenipotentiaries on the Minamata Convention on Mercury, UNEP(DTIE)/Hg/CONF/4, 11 October 2013, pp. 7~8.

81 See UNEP, Report of the Intergovernmental Negotiating Committee to Prepare a Global Legally Binding Instrument on Mercury on the Work of Its Sixth Session, UNEP(DTIE)/Hg/INC.6/24, 25 February 2015, pp. 13~14.

82 Minamata Convention, Article 20.

83 Minamata Convention, Article 21.

84 See Jessica Templeton and Pia Kohler, Implementation and Compliance under the Minamata Convention on Mercury, *Review of European Community & International Environmental Law*, Vol. 23, Issue 2, 2014, p. 211.

through three avenues. Review may be undertaken on the basis of: written submissions from any Party as to its own compliance; national reports; and requests from the Conference of the Parties. Recommendations of the Committee are to be by consensus but if consensus cannot be reached recommendations are to be adopted as a last resort by the three-fourths majority vote.⁸⁵

G. Sorting out Relationships with Other Conventions and International Bodies and Initiatives

With the Minamata Convention being the “new kid on the block” in international toxic substance management,⁸⁶ a host of cooperation challenges loom on the horizon. As recognized in a resolution on matters pertaining to other international bodies, adopted at the October 2013 Conference to conclude the Minamata Convention, close cooperation is required particularly relating to health aspects with the World Health Organization, International Labour Organization and the World Customs Organization.⁸⁷ A resolution on arrangements in the interim period, before entry into force of the Convention, also adopted in October 2013, requests the Executive Director of UNEP to prepare a report on options for a permanent secretariat including potential locations and the possible merging of the secretariat with the joint secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants.⁸⁸ The Minamata Convention itself requires the Executive Director of UNEP to perform the secretariat functions unless the Conference of the Parties decides to entrust the secretariat functions to one or more international bodies.⁸⁹ How capacity-building for mercury management might be best piggy-

85 Minamata Convention, Article 15.6.

86 David L. VanderZwaag, The Precautionary Approach and the International Control of Toxic Chemicals: Beacon of Hope, Sea of Confusion and Dilution, *Houston Journal of International Law*, Vol. 33, No. 3, 2011, p. 605.

87 Conference of Plenipotentiaries on the Minamata Convention on Mercury, Final Act of the Conference of Plenipotentiaries on the Minamata Convention on Mercury, UNEP(DTIE)/Hg/CONF/4, 11 October 2013, Annex I, p. 8.

88 Conference of Plenipotentiaries on the Minamata Convention on Mercury, Final Act of the Conference of Plenipotentiaries on the Minamata Convention on Mercury, UNEP(DTIE)/Hg/CONF/4, 11 October 2013, Annex I, p. 6.

89 Minamata Convention, Article 24.3.

backed on existing or proposed training programs under other conventions is a further issue. The Convention's relationship to UNEP's voluntary Global Mercury Partnership⁹⁰ and various regional and bilateral agreements/initiatives addressing mercury also need to be considered.⁹¹

The relationship of the Minamata Convention with the Protocol on Heavy Metals to the 1979 Convention on Long-range Transboundary Air Pollution⁹² is a key question. Pursuant to the Protocol, Parties have already adopted a guidance document on best available techniques for controlling emission of heavy metals including mercury⁹³ which could be adapted as a model under the Minamata Convention. Parties to the Heavy Metals Protocol have already established a limit value for mercury emissions for waste incineration (0.05 mg/m³).⁹⁴ Pursuant to the Conference of Plenipotentiaries resolution on arrangements in the interim period, an Expert Group on Best Available Techniques and Best Environmental Practices has been established to draft a guidance document but it remains to be seen how far elements from the Heavy Metals Protocol will be considered.⁹⁵

The interrelationships between the financial mechanism under the Minamata Convention and other international financing schemes relevant to mercury also need to be sorted out.⁹⁶ At the first session of the United Nations Environment

90 For reviews of the Partnership's various activities relating to mercury, see UNEP, *Mercury Acting Now!*, Geneva, Switzerland: UNEP Chemicals Branch, 2013; and UNEP, Report on Activities Undertaken within the UNEP Global Mercury Partnership (July 2013-July 2014), UNEP(DTIE)/Hg/PAG.6/4, 16 October 2014.

91 Arctic Contaminants Action Program (ACAP), *Assessment of Existing and Planned Initiatives Addressing Mercury Sources in the Arctic States and Identification of Possible Measures for Follow-up*, Copenhagen, Denmark: Danish Environmental Protection Agency, 2006.

92 Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Heavy Metals, 24 June 1998, *U.N.T.S.*, Vol. 2237, p. 4.

93 Economic Commission for Europe, Guidance Document on Best Available Techniques for Controlling Emissions of Heavy Metals and Their Compounds from Source Categories Listed in Annex II to the Protocol on Heavy Metals, UNECE, 2013, ECE/EB.AIR/116.

94 Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Heavy Metals, 24 June 1998, *U.N.T.S.*, Vol. 2237, p. 4, Annex V.

95 See UNEP, Development of Guidance Documents, UNEP (DTIE)/Hg/EG.1/5; UNEP, Report of the Intergovernmental Negotiating Committee to Prepare a Global Legally Binding Instrument on Mercury on the Work of Its Sixth Session, UNEP(DTIE)/Hg/INC.6/24, 25 February 2015, pp. 11-12.

96 It was raised by the representative speaking on behalf of Latin American and Caribbean States at the sixth session of the Intergovernmental Negotiating Committee. See UNEP, Report of the Intergovernmental Negotiating Committee to Prepare a Global Legally Binding Instrument on Mercury on the Work of Its Sixth Session, UNEP(DTIE)/Hg/INC.6/24, 25 February 2015, pp. 5-6.

Assembly of UNEP in June 2014, representatives agreed to establish a new special programme to support institutional strengthening at the national level to enhance implementation of the Basel, Rotterdam and Stockholm Conventions, the Minamata Convention on Mercury and the Strategic Approach to International Chemicals Management.⁹⁷ How this new special programme will relate to the Minamata Convention's specific international programme to support capacity-building and technical assistance⁹⁸ has yet to be resolved.

IV. Conclusion

The Minamata Convention certainly represents a step forward for the protection of the Arctic environment. With long-range transport of mercury into the region a long time problem, the Convention offers a suite of promises to control and curb mercury emissions and releases. Phase-out dates have been set for a long list of mercury-added products including batteries, many fluorescent lamps, switches and relays, pesticides, and various measuring devices including thermometers. Primary mercury mining is on the road to termination. Use of mercury-free products and industrial processes seems bound to increase.

Member States of the Arctic Council themselves recognized the major milestone reached through the adoption of the Convention. In a formal statement to the Diplomatic Conference on the Minamata Convention in October 2013, Canada on behalf of the Arctic Council welcomed the adoption of the Convention and the progress in laying the groundwork for global reductions of mercury emissions.⁹⁹

However, the Minamata Convention stands out as a text laden with political compromises and largely displaying lowest common denominator standards. With no concrete emission reduction targets and emission limits being set, the door may be open for countries to actually increase their emission capacities.¹⁰⁰ No phase-out

97 United Nations Environmental Assembly of the United Nations Environmental Programme, Proceedings of the United Nations Environment Assembly of the United Nations Environment Programme at Its First Session, UNEP/EA.1/10, pp. 30–36.

98 Minamata Convention, Article 13.6(b).

99 Statement to the Diplomatic Conference on the Minamata Convention on Mercury, at <http://www.arctic-council.org/index.php/en/document-archive/category/407-statements?download=1898:minamata-convention-on-mercury-october-2013>, 15 March 2015.

100 Rebecca Kessler, The Minamata Convention on Mercury: A First Step toward Protecting Future Generations, *Environmental Health Perspectives*, Vol. 121, No. 10, 2013, pp. A304, A307.

date has been set for the greatest source of mercury in the environment, artisanal and small-scale gold mining and the use of mercury in dental amalgam is not eliminated but only to be gradually reduced.¹⁰¹ The Convention may also allow substantial “foot dragging” as Parties may request exemptions from established phase-out dates and Parties are given 5 year and 10 year leeways to bring new and existing point sources of mercury air emissions under control.¹⁰²

Some of the most difficult political and technical issues in mercury management have been deferred to the treaty implementation stage. Thresholds for determining what point source facilities are subject to emission control and reduction commitments have yet to be agreed to. Guidance on best available techniques and best environmental practices has yet to be forged. Sorting out the institutional arrangements with other conventions and international bodies and initiatives relating to mercury remains a work in progress. Financial arrangements and contributions, the “heart and soul” of ensuring strong treaty implementation, have yet to be finalized.

Nevertheless, substantial drafting and financial progressions may be seen in the interim period before the first meeting of the Conference of the Parties to the Convention. The Conference of Plenipotentiaries on the Minamata Convention called for further meetings of the INC in order to prepare for the Convention’s entry into force.¹⁰³ Various guidance documents and forms, including those relating to written consent and reporting, are being prepared under the direction of the INC which held its sixth session in November 2014.¹⁰⁴ The GEF has agreed to include mercury and the Minamata Convention within its new integrated focal area on chemicals and wastes and the GEF has allocated \$141 million from its 6th replenishment period to support entry into force of the Convention and its

101 Rebecca Kessler, The Minamata Convention on Mercury: A First Step toward Protecting Future Generations, *Environmental Health Perspectives*, Vol. 121, No. 10, 2013, p. A307.

102 Rebecca Kessler, The Minamata Convention on Mercury: A First Step toward Protecting Future Generations, *Environmental Health Perspectives*, Vol. 121, No. 10, 2013, p. A307.

103 Through Resolution 1 on arrangements in the interim period. See Conference of Plenipotentiaries on the Minamata Convention on Mercury, Final Act of the Conference of Plenipotentiaries on the Minamata Convention on Mercury, UNEP(DTIE)/Hg/CONF/4, Annex I, p. 5.

104 See UNEP, Report of the Intergovernmental Negotiating Committee to Prepare a Global Legally Binding Instrument on Mercury on the Work of Its Sixth Session, UNEP(DTIE)/Hg/INC.6/24, 25 February 2014.

implementation.¹⁰⁵

Future evolutions in the overall framework for international chemicals and waste management remain uncertain.¹⁰⁶ The need for a more comprehensive chemicals convention has been raised by various authors,¹⁰⁷ but political support has not been forthcoming to move towards a more integrated and precautionary approach. The Minamata Convention in fact represents a continuation of the traditional “problem by problem” approach.¹⁰⁸ Whether lead, cadmium, and other heavy metals will eventually require global legally binding commitments is a further question.¹⁰⁹

While the Minamata Convention sets promising directions for addressing long-range transport of mercury into the Arctic, implementation efforts are likely to be long and arduous. The Convention is not an end point but a starting point.

105 See UNEP, Report on Activities of the Global Environment Facility in Relation to the Minamata Convention during the Interim Period, UNEP (DTIE)/Hg/INC.6/INF/6, 14 October 2014.

106 On the need for future regulatory debates and imaginations, see Elizabeth Fisher, Chemicals as Regulatory Objects, *Review of European Community & International Environmental Law*, Vol. 23, Issue 2, 2014, p. 163.

107 See, e.g., Katharina Kummer Peiry, The Chemicals and Waste Regime as a Basis for a Comprehensive International Framework on Sustainable Management of Potentially Hazardous Materials?, *Review of European Community & International Environmental Law*, Vol. 23, Issue 2, 2014, p. 172; Ken Geiser and Sally Edwards, Instruments and Approaches for the Sound Management of Chemicals, in UNEP ed., *Global Chemicals Outlook – towards Sound Management of Chemicals*, UNEP, 2013, pp. 173–236, 230.

108 Katharina Kummer Peiry, The Chemicals and Waste Regime as a Basis for a Comprehensive International Framework on Sustainable Management of Potentially Hazardous Materials?, *Review of Economic Community & International Environmental Law*, Vol. 23, Issue 2, 2014, p. 176.

109 Resolution 1/5 on Chemicals and Wastes, adopted at the first session of the United Nations Environment Assembly in June 2014, recognized the continuing significant risk of lead and cadmium releases to human health and the environment but was thin on prescriptions, suggesting possible regional workshops on lead paint and further compilations of information on emission abatement and management techniques for lead and cadmium. UNEP, Proceedings of the United Nations Environment Assembly of the United Nations Environment Programme at Its First Session, UNEP/EA.1/10, 2 September 2014, p. 32.