



Distr.: General
15 October 2012

Original: English



United Nations Environment Programme

Intergovernmental negotiating committee to prepare a global legally binding instrument on mercury

Fifth session

Geneva, 13–18 January 2013

Item 3 of the provisional agenda*

Preparation of a global legally binding instrument on mercury

Air emission thresholds for facilities and information on releases to land and water

Note by the secretariat

Introduction

1. At its fourth session, the intergovernmental negotiating committee to prepare a global legally binding agreement on mercury agreed that the co-chairs of the contact group on emissions and releases would prepare, for consideration by the committee at its fifth session, proposed thresholds for each of the source categories in Annex F below which the provisions of the mercury instrument might not apply, taking into account the size of emitting installations. In addition, Governments were requested to provide to the secretariat, by 31 August 2012, any relevant information that might assist the co-chairs in preparing the proposed thresholds, including information about thresholds in use in regulating mercury at the national level. Governments were also requested to provide to the secretariat by the same date any additional information on sources of emissions and releases of mercury to land and water, and the secretariat was requested to compile such information for consideration by the committee at its fifth session.

2. The present note sets out a summary of the information provided by Governments in relation to mercury air emission thresholds, as well as additional information on sources of emissions and releases of mercury to land and water. A proposal by the co-chairs on proposed mercury air emission thresholds, which may be considered by the committee at its fifth session, is set out in annex I, while a detailed summary of the information on sources of emissions and releases of mercury to land and water as provided by Governments is set out in annex II.

Submissions received

3. Submissions were received from 31 countries and one regional economic integration organization. The list of countries making submissions is set out in document UNEP(DTIE)/Hg/INC.5/INF/1; the submissions are available on the mercury website.¹

* UNEP(DTIE)/Hg/INC.5/1.

1 <http://www.unep.org/hazardoussubstances/Mercury/Negotiations/INC5/tabid/3471/Default.aspx>.

Information submitted relating to mercury emissions to air

4. Two submissions provided detailed information relating to the regulation of facilities above a certain size. A number of activities covered by those regulations do not have applicable thresholds, indicating that all facilities undertaking such activities (including the refining of mineral oil and gas, the roasting or sintering of metal ore and the production of non-ferrous crude metals from ore, concentrates or secondary raw materials) are regulated. A submission from another country indicated that, while it did not have any specific regulatory measures controlling mercury emissions, regulations controlling other pollutants could be used as a reference for the regulation of mercury.

5. A number of countries indicated that they had not established any thresholds for industrial plants, requiring either regulation on a case-by-case basis or that each facility meet standards for emissions limits. Such limits may be set in a number of ways, including an annual limit for mercury emissions or a concentration limit applied to flue gas. While there was a significant range of accepted limits, most fell within a range of 0.01 to 0.2 mg/m³.

Information submitted on sources of emissions and releases to land and water

6. A number of countries submitted the results of either preliminary or full inventories undertaken using the United Nations Environment Programme (UNEP) "Toolkit for identification and quantification of mercury releases", including estimations of annual emissions and releases to air, land and water. Other countries submitted results gathered under national reporting obligations or through pollutant release and transfer registries. A summary of those results is presented in annex II.

7. The information provided indicated that mining activities involving the extraction of large quantities of ore, with tailings subsequently deposited in mining areas, constituted a major release source to both land and water. One submission indicated that it considered the results produced by using the default values set out in the UNEP toolkit to be very high, with an overestimate of mercury from gold-containing ore. Other sources of releases to water included sewage and wastewater treatment, with contributions noted from dental amalgam and mercury-containing products. Releases to soil were associated with chlor-alkali plants, the burying of wastes (including municipal wastes) and local contamination near cemeteries.

8. A number of submissions also identified control levels for releases as well as acceptable levels for potable and other water. Permitted levels in discharges ranged from 0.001 mg/L to 0.05 mg/L.

9. According to the information submitted on sources of emissions and releases to land and water, the major release categories are those listed in Annex G of the Chair's draft text and wastes management activities, which would be covered by the requirement for the environmentally sound management of mercury wastes set out in Article 13 of the Chair's draft text.

Conclusion

10. The Committee may wish to consider the proposal by the co-chairs on thresholds for facilities set out in annex I to the present note as part of its negotiation of appropriate measures on emissions.

11. The Committee may wish to bear in mind the information provided on sources of emissions and releases to water and land, as well as the information on the extent of such releases, as part of its consideration of appropriate measures on releases to land and water.

Annex I

Proposal by the co-chairs for possible thresholds for facilities

1. During the discussions on emissions and releases at the fourth session of the Committee, the proposed list of source categories for emissions to the atmosphere set out in Annex F was considered and a revised list prepared. The co-chairs were requested by the Committee to prepare proposed thresholds, taking into account the size of the facilities.

Rationale for setting thresholds

2. Although no detailed discussions on this matter were held during the fourth session, delegations identified two broad reasons why the establishment of thresholds might be appropriate:

(a) It would enable regulatory authorities to focus resources for regulation and monitoring on larger sources. Although the Committee has no specific evidence in this regard, it is likely that this would be the most effective use of resources to control emissions;

(b) It is likely to be less cost-effective to apply best available techniques, for example, to small sources.

3. The aim, therefore, would be to cover a large proportion of emissions of mercury by addressing a much smaller proportion of potential sources so as to achieve the greatest environmental and health benefits with the resources available.

Proposals for thresholds

4. We have drawn on the information made available to the secretariat by Governments. Some have made proposals for possible thresholds, while others have indicated that a different approach is used in their countries, with the regulation of facilities based on overall regulation or on case-by-case assessments. In general, however, very limited specific information was provided, and the proposals set out below are therefore tentative suggestions put forward to aid discussion and assist in the making of final decisions at the fifth meeting of the Committee.

Source of mercury emissions

5. It should be noted that in our proposal for thresholds we have used the sources of emissions included in the Chair's text (UNEP(DTIE)/Hg/INC.5/3, annex II), rather than those included at the conclusion of the fourth session. We have done so to facilitate the discussions and with the support of the Chair.

Coal-fired power stations and industrial boilers

6. One Government indicated that, in its jurisdiction, a threshold of 50 MW was used on the basis of the thermal input for such plants, while another identified a threshold of 25 MW for electricity output. For power generation in new, high-efficiency plants, those two thresholds may be approximately equivalent, while for older plants with a lower level of efficiency, the threshold of 50 MW on thermal input is more restrictive. Another submission indicated that other pollutants were regulated on the basis of either the heat transfer area or the combustion capacity in crude oil equivalent. In the table below, we have proposed thresholds based on the thermal capacity, as this appears to be the most direct measurement. In the absence of additional information, a threshold has been proposed for industrial boilers similar to that for power stations.

Production facilities for non-ferrous metals

7. With regard to the production facilities for non-ferrous metals, a number of options were presented, including the following:

- (a) No threshold (all facilities regulated) for production of crude metals from ore;
- (b) A melting capacity of 4 tonnes per day for lead or 20 tonnes per day for other metals;
- (c) 1 tonne per hour of processing capacity for raw materials.

We have suggested for discussion a threshold expressed as "tonnes per day" to cover the majority of the options proposed for this more general category.

Iron and steel manufacturing industries

8. For the roasting or sintering of metal ore, no threshold was proposed in one submission, with 1 tonne per hour of production capacity proposed in another. For the production of pig iron or steel,

one proposal indicated a capacity exceeding 2.5 tonnes per hour, while another submission proposed a threshold expressed in relation to the combustion capacity of the burner. A proposal has been made for the general entry on manufacturing facilities to set the threshold on the basis of tonnes per hour.

Waste incineration facilities

9. On waste incineration facilities, proposals included 200 kg per hour or more of incineration capacity for all categories of wastes, 3 tonnes per hour for non-hazardous wastes and 10 tonnes per day for hazardous wastes.

Cement production

10. For cement production, one proposal set the threshold on the basis of production capacity, while another considered regulation on the basis of thermal capacity based on a comparison with the combustion of oil. Given the range of fuels which can be utilized in cement production, we suggest that a threshold based on production capacity would facilitate implementation, as it provides an easily determined and constant measure.

Gas and oil production

11. For oil and gas production facilities, one submission indicated that such facilities were not covered by the regulations on industrial emissions. Another submission indicated a possible threshold based on the combustion capacity of the burner. We have not proposed a threshold for this entry.

General comments

12. If the Committee decides to include thresholds in Annex F to the Convention, it will be open to the Conference of the Parties to amend them at any stage after the Convention has come into force, following the procedure set out in article 28 of the Chair's draft text. It would therefore be possible to revise the thresholds in the light of developments in technology or as more resources become available to tackle a greater number of sources.

13. It should also be noted that nothing in the Chair's draft text would prevent a party from applying control measures to sources which fall below the thresholds as a matter of national policy.

Source categories

<i>Proposed entry</i>	<i>Proposed threshold</i>
Coal-fired power plants	Rated thermal input of 50 MW
Coal-fired industrial boilers	Rated thermal input of 50 MW
Lead production facilities with a capacity of:	Production of metal from ore: 1 tonne per day Melting and alloyage: 4 tonnes per day ^a
Zinc production facilities with a capacity of:	Production of metal from ore: all facilities regulated Melting and alloyage: 20 tonnes per day
Copper production facilities with a capacity of:	Production of metal from ore: all facilities regulated Melting and alloyage: 20 tonnes per day
Industrial gold production facilities with a capacity of:	Production of metal from ore: all facilities regulated Melting and alloyage: 20 tonnes per day
[Manganese production facilities with a capacity of:]	Production of metal from ore: all facilities regulated Melting and alloyage: 20 tonnes per day

<i>Proposed entry</i>	<i>Proposed threshold</i>
Waste incineration facilities with a capacity of:	Capacity of 35 tonnes per day for non-hazardous wastes and 10 tonnes per day for hazardous wastes
Cement production facilities with a capacity of:	Production capacity of 50 tonnes per day
[Iron and steel manufacturing facilities with a capacity of:] [, including secondary steel plants]	Production of metal from ore: 1 tonne per day Production of pig iron or steel: capacity of 2.5 tonnes per hour Operation of ferrous metal foundries: capacity of 20 tonnes per day
[Oil and gas production and processing facilities]	No proposal at this time
[Facilities in which mercury-added products are manufactured]	No proposal at this time
[Facilities that use mercury or mercury compounds in the manufacturing processes listed in Annex D]	No proposal at this time

^a The amount per day for lead is consistent with controls currently imposed in some jurisdictions, although this may be related to concerns regarding the toxicity of lead rather than to mercury emissions.

Annex II

Summary of information on emissions and releases to land and water provided to the secretariat

Bolivia (Plurinational State of)

The major identified source of mercury pollution was artisanal and small-scale gold mining using mercury, including during transport and handling, the use of mercury in amalgamation and releases from smelting. No estimate of releases was provided; however, it was indicated that mercury levels in river sediment ranged from 0.3 to 11.4 mg/g and in fish from 0.1 to 0.2 mg/g.

Botswana

An initial inventory with estimated emissions and releases was submitted. Releases to water were estimated at 1,990 kg/year, and releases to soil at 46,780 kg/year. The major release source was mercury by-products from gold mining and processing (not using mercury), which resulted in water releases of 989 kg/year, and releases to soil of 44,500 kg/year. Other sources included copper extraction from concentrates, wastes management and incineration, use and disposal of mercury-added products, energy generation and cement production.

Brazil

Information on releases from a chlor-alkali plant was provided, which indicated that from 2007 to 2010 releases of mercury to water have increased from 3.7 kg/year to 12.4 kg/year. The amounts of mercury from solid waste from the plant were 3.3 kg in 2007, 3.9 kg in 2009 and 1.9 kg in 2010. Independent studies of the level of mercury in sediments in ports found that seven ports had concentrations of mercury below 0.3 mg/kg, and four had concentrations of about 1 mg/kg.

Canada

The national pollutants release inventory indicated the sources and amounts of mercury releases to water and land in 2010. Total releases were 259 kg to water and 99 kg to land, much lower than emissions to air in the same period (5,222 kg). The main source of release to water was from the group of activities which included "water, sewerage and other systems", at 131 kg, followed by pulp, paper and paperboard mills, at 80 kg. Releases to soil were mainly produced by metal ore mining, at 96 kg. Other identified release sources to water, land or both included alumina and aluminium production and processing, cement and concrete product manufacturing, electricity generation, transmission and distribution, foundries, iron and steel mills and ferro-alloy manufacturing, non-ferrous (excluding aluminium) production and processing, petroleum and coal product manufacturing and support activities for water transportation.

China

Information on the quantity of mercury released to land and water was not provided; however, information on pollutant emissions standards applied to releases to water was submitted. This indicated that the emissions standard for the lead and zinc industry was 0.03 mg/L, while for the copper, nickel and cobalt industry it was 0.05 mg/L. Discharge standards of pollutants for urban sewage treatment plants had a threshold value of 0.001 mg/L, with the standard for integrated discharge of sewage at 0.05 mg/L.

Costa Rica

The results of a preliminary inventory were submitted, indicating that environmental mercury releases amounted to approximately 31,000 kg per year, of which 93 per cent constituted emissions to air. Releases to water were approximately 1.5 per cent (465 kg/year), while no indication was given of specific releases to land.

Croatia

Information on releases to four water basins described in the Water Act (OG 150/2005) or to the sea by Croatia in 2010 was submitted. Releases from wastewater and public sewage amounted to 0.07 kg/year, while releases from industrial sites amounted to 2.33 kg/year, with sources including manufacturing processes, obtaining and distributing fossil fuels and the use of diluters and other products. No releases to soil were reported in 2010.

Gabon

A summary of the inventory was submitted indicating total releases to water of 89,630 kg/year, of which 89,204 kg/year came from skin-lightening creams and soaps containing mercury. Other contributions were from other mercury-added products, fuel production and artisanal and small-scale gold mining. Releases to soil totalled 4,970 kg/year, with 4,695 kg/year from skin-lightening creams and soaps containing mercury, with other mercury-added products, cemeteries and artisanal and small-scale gold mining also contributing.

Georgia

No detailed information on releases was submitted; however, the maximum allowed concentration of mercury in surface water (as established by the Ministry of Labour, Health and Social Affairs in order No. 38 of 24 February 2003) was confirmed at 0.0005 mg/L.

Guatemala

While no detailed information was submitted, the results of a preliminary inventory indicated that the most important source of emissions was energy production, as well as mercury-added products and wastes combustion.

Japan

Information on releases of mercury to land and water is gathered through the pollutant release and transfer register. No releases to land were reported in 2010, while releases to water ranged from 1 kg/year to 118 kg/year, with the greatest contribution coming from sewage-treatment plants.

Lebanon

The main sources of releases to land and water were identified as thermometers, sphygmomanometers, dental amalgam, energy-efficient lamps, pressure switches and barometers.

Madagascar

Madagascar submitted the results of its inventory, which indicated that between 76,328 kg and 93,471 kg of mercury were released to the environment, most of it resulting from the burying of wastes and some from incineration, with the use of products, crematoria and cemeteries, and energy production also contributing. Releases to water were estimated at between 8,000 kg and 21,000 kg, and releases to soil at between 11,400 kg and 12,700 kg.

Malaysia

No information on actual releases was provided. However, Malaysia submitted a list of controlled industries which are required to meet emission standards, including power plants, the cement, lime-processing, petrochemicals, pulp and paper, and iron and steel industries, natural oil and gas extraction and refining and primary ferrous metal production. Regulations from 2009 apply a standard for maximum releases from industrial sites of either 0.005 mg/L or 0.05 mg/L, while for waste transfer stations and landfill the maximum level in discharged leachate is 0.005 mg/L.

Mauritius

Releases to water and land were not quantified, although the submission indicated that sources were expected to be similar to those which produce air emissions. Those sources were mainly coal-fired power generation, medical waste incinerators, some textile industries which use coal as fuel and the jewellery sector. Releases to land and water are regulated, with releases to drinking water at 0.001 mg/L, inland surface water at 100 mg/L, water point sources at 0.005 mg/L and effluent discharge into the ocean at 10,000 mg/L. The standard for wastewater for use in irrigation is a maximum of 0.02 mg/L, while coastal water quality is 0.0005 mg/L. The Food Act 2000 has an action level for mercury of 1 ppm in fish.

Monaco

The submission indicated that there were no industrial uses of mercury in Monaco, while mercury added products were collected after use. Mercury-containing thermometers were not sold in Monaco.

Mongolia

The inventory report was submitted, indicating that the main source of releases to land and water was primary metal production (not amalgamation), resulting in 10,842 kg/year to water and 485,960 kg/year to soil. With regard to water, other sources of releases included wastewater treatment (621 kg/year), use and disposal of dental amalgam fillings (136 kg/year) and the use and disposal of other products (78 kg/year). Other sources of releases to land included informal dumping of general wastes (2,190 kg/year) and use and disposal of other products (241 kg/year). Mongolia indicated that the default values in the toolkit had been used. The values for gold-containing ore were considered to be very high, and it was suggested that the mercury emissions and releases related to primary metal production had been significantly overestimated in this inventory.

Morocco

No information on actual levels of releases was provided; however, the regulation controls levels for discharges to between 0.01 mg/L and .05 mg/L. Permitted mercury levels in surface and drinking water are less than 1 mg/L.

Myanmar

No information was submitted on any releases to land or water; however, the submission stated that releasing mercury to land and water was prohibited in Myanmar.

Norway

Releases to water are regulated on a case-by-case basis, including for onshore, offshore and wastewater treatments. In 2011, estimated total releases were 12.7 kg onshore and 14.7 kg offshore. In 2010, releases from wastewater treatment were estimated at 5.2 kg. There are no active sources with releases to land.

Panama

The inventory report was submitted. The main sources of water releases were laboratory equipment (at 230 kg/year) and thermometers (at up to 222 kg/year). The main sources of release to the soil were switches (at up to 158 kg/year) and cemeteries (at up to 54 kg/year).

Peru

The Ministry of Energy and Mines reported that mercury releases to water from mining activities and the hydrocarbon sector were controlled.

Senegal

The use of mercury in the extraction of gold is the main source of mercury releases in the mining sectors in Senegal. Limited information is available, although a report from the mining sector on health and environmental impacts was published in 2009.

Seychelles

The submission indicated that, while releases to water and soil were not monitored, potable water was regularly tested and was assumed to have the same levels as environmental water, with results normally less than 1 microgram per litre.

Suriname

Sources of releases to water and land were identified as being from industrial activities (mining, power generation, artisanal mining, small-scale gold mining and refining), waste disposal, medical and dental uses and other anthropogenic activities. No detailed information was available.

United States of America

The submission indicated that it was not possible to provide a meaningful estimate of uncontrolled releases to land using the reporting mechanisms for releases to land. Releases to surface water — reported releases to publically owned treatment works as well as direct releases — were estimated at approximately 1.56 metric tonnes per year.

Uruguay

An inventory has been developed which indicated that major release sources were chlor-alkali production and wastes from dental amalgam, which was released in particular to water. Another major source of mercury releases was general waste, which might include mercury-added products. The main concern with that release route was the large volume of wastes.

European Union

No data on releases was submitted; however, it was confirmed that releases were reported by member States through the pollutant release and transfer register. Reporting is required for facilities listed in annex I of regulation 166/2006 with releases to water and/or land of more than 1 kg per year.

Other organizations

Document UNEP(DEPI)/MED IG 20/Inf.12 contains information on mercury emission limit values and best available techniques in Mediterranean countries. The emission limit value, which will take effect in 2015, is 0.05 mg/L for industrial sources. Of the 12 countries participating, 9 supported an emission limit value of 0.005 mg/L in 2019, with two countries preferring to maintain the 2015 level. One country requested that an evaluation of compliance with the 2015 level be done prior to establishing a new level. Participating countries were Bosnia and Herzegovina, Cyprus, France, Israel, Italy, Lebanon, Malta, Monaco, Morocco, the Syrian Arab Republic, Tunisia and Turkey.
