# ZERO MERCURY WORKING GROUP ACTION CHALLENGE FINAL REPORT

## Introduction

At the Diplomatic Conference in October 2013, the Zero Mercury Working Group (ZMWG) issued an Action Challenge, calling on certain governments to complete priority mercury reduction activities before the end of 2015. The activities relate to mercury supply and trade, mercury products and processes, and mercury air emissions. Information on the Action Challenge can be found at **www.zeromercury.org**.

In this report, we summarize the results of the Action Challenge, noting where the individual Challenges have been met. We commend each government for meeting its Challenge(s).

We also provide a final global grade for each of the issue areas. Global grades are based on both government responses to the Action Challenge and any significant global trends or global activities. Our grading criteria are as follows:

| | |
|---|---|
| *Action Challenges met, and no significant countervailing global trends or activities* | A |
| *Significant progress made toward completion of Action Challenges, successful conclusion anticipated before COP 1, and no significant countervailing global trends or activities* | B |
| *Some progress on Action Challenges made, and global trends or activities are either uncertain or inconclusive* | C |
| *No significant progress on Action Challenges made, progress before COP 1 is uncertain, and global trends or activities are problematic* | D |
| *No significant progress on Action Challenges made, such progress is unlikely before COP 1, and global trends or activities are problematic* | F |

Global trends and activities affected one of the grades in particular. The global grade on mercury supply and trade was lowered, because of a significant number of disturbing international developments, identified below, which reinforce the critical importance of immediate and decisive national actions in this area.

The developments on supply and trade also have important implications for INC 7, as discussed below. They highlight the need for timely information on mercury production and trade, which the INC should take into account as it considers the Article 21 reporting form.

| ZMWG ACTION CHALLENGE | CURRENT STATUS | OVERALL GRADE AND COMMENTS |
|---|---|---|
| **MERCURY SUPPLY AND TRADE** | | |
| China mercury export ban | No formal action taken or underway. |   This grade accounts for several countries which adopted or are considering export bans (including Canada), but also considers the lack of action in other countries, and the disturbing trends in global supply and trade specified below. |
| Japan mercury export ban | Partial export ban enacted in ratification package of legislation.[1] No export allowed for use in ASGM or interim storage, and export restrictions apply to mercury and compounds identified in Article 3. Additional reporting imposed to ensure exports of mercury are not diverted to prohibited uses. **Action Challenge Met.** | |
| Switzerland mercury export ban | Regulating the export of mercury is under consideration by the government, with a plan to finalize the regulation in the second half of 2016. | |
| Singapore mercury export ban | No formal action taken or underway. | |
| Kyrgyzstan plan to phase out mercury mine | No formal action taken or underway. | |

[1] See http://www.env.go.jp/chemi/tmms/suigin_pamphlet_20150914_EN.pdf.

| ZMWG ACTION CHALLENGE | CURRENT STATUS | OVERALL GRADE AND COMMENTS |
|---|---|---|
| **MERCURY PRODUCT PHASE-OUTS** | | |
| USA general product phase-out | Product strategy published;[2] initial data collection from mercury producers undertaken;[3] currently pursuing additional data gathering on mercury use;[4] but no actual phase-out activities implemented. | Global Grade C<br>This grade reflects the mixed results thus far on products. Given the potential capability for producing substantial quantities of non-mercury medical devices for export, we urge India to accelerate the transition to mercury free medical devices. |
| Canada general product phase-out | Final rules published on November 19, 2014.[5] **Action Challenge Met.** | |
| India medical device phase-out | No formal action taken or underway. A 2010 national order to terminate purchases of mercury medical devices at government hospitals under the central ministries is in place. | |
| South Africa medical device phase-out | Initial steps underway to develop an action plan to phase out mercury use in the health care sector, but no final action taken at national level. | |
| European Union (EU) Battery phase-out | Adopted on November 20, 2013.[6] The prohibition on use of mercury applies to all button cell batteries, effective October 1, 2015. A prior directive already prohibited mercury use in other batteries. **Action Challenge Met.** | |
| EU dental amalgam phase-out proposal | Notwithstanding a European Commission (EC) scientific committee recommending mercury free alternatives for children primary teeth and pregnant women,[7] and a 2012 EC commissioned study which recommended banning the use of mercury in dentistry by 2018,[8] the proposed EC's ratification regulatory package only restricts mercury use by requiring amalgam in its encapsulated form.[9] | |
| Lebanon initiate dental amalgam phase down implementation | No formal action was taken or is underway, but stakeholder discussions have begun. An NGO organized meetings with officials from different ministries, and workshops on phasing down dental amalgam in Lebanon. In addition, a national Convention conference was organized on 21 March 2015 with the participation of all ministries and other stakeholders from the industry and civil society, where the issue of phasing out dental amalgam was emphasized. | |

[2] http://www.epa.gov/mercury/pdfs/productsstrategy.pdf.
[3] http://www.epa.gov/mercury/pdfs/Hg_Formal%20Request_SIGNED_03-20-2015.pdf
[4] http://www.gpo.gov/fdsys/pkg/FR-2015-10-07/pdf/2015-24849.pdf.
[5] http://www.gazette.gc.ca/rp-pr/p2/2014/2014-11-19/pdf/g2-14824.
[6] See http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013L0056.
[7] See http://ec.europa.eu/health/scientific_committees/consultations/public_consultations/scenihr_consultation_24_en.htm.
[8] See http://ec.europa.eu/environment/chemicals/mercury/pdf/final_report_110712.pdf.
[9] See http://ec.europa.eu/environment/chemicals/mercury/ratification_en.htm.

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|---|---|---|
| Philippines initiate dental amalgam phase-out implementation | The Department of Health (DOH) issued an Administrative Order calling for a national phase out of mercury in healthcare facilities in 2008. The DOH began a consultation process with stakeholders in 2015 to include dental amalgam in the phase out. Consultations are still ongoing and there is no definite date on when the amendment will be finalized and issued. The Department of Environment and Natural Resources (DENR) is reviewing its Chemical Control Order on Mercury (CCO). The DENR is proposing to remove all existing exemptions to the CCO which will include major uses such as mining and metallurgical processes, dental amalgam, etc. It is not known when this CCO Amendment will be finalized and adopted. | |
| **MERCURY CELL CHLOR-ALKALI PHASE-OUT** | | |
| Brazil issue phase-out requirement | No formal action taken or underway. | Global Grade B-<br>In assigning this grade, we took into account the large proportion of global mercury cell production capacity in the EU, and the finality of the action taken. Nevertheless, we encourage other countries to move aggressively to phase out mercury use in this sector. |
| EU issue binding phase-out obligation | Best Available Technology (BAT) reference document issued in December 2013 indicating mercury cell process is not BAT, triggering the phase-out by 2017.[10] **Action Challenge Met.** | |
| Russia issue phase-out requirement | No formal action taken or underway, but several plants are moving toward decommissioning. | |
| USA issue phase-out requirement | No formal action taken or underway to finalize the March 2011 proposal.[11] | |

[10] See http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.332.01.0034.01.ENG.
[11] http://yosemite.epa.gov/opei/rulegate.nsf/byRIN/2060-AN99#1.

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|---|---|---|
| **ASGM NATIONAL ACTION PLAN DEVELOPMENT AND IMPLEMENTATION** | | |
| Brazil | Data to assess baseline situation may be obtained as part of Minamata Initial Assessment (MIA). | Global Grade C+<br>In assigning this grade, we note the breadth of activities that have been at least initiated, in these and in other ASGM countries. However, progress on initiating NAPs has been unnecessarily slow, particularly given that there are GEF funds available to support the process. Further, since NAP development processes have not begun in key countries, it is unlikely that countries have focused yet on NAP requirements to manage mercury trade, a significant concern given much of the current mercury trade is destined for ASGM countries. |
| Colombia | Initial National Action Plan (NAP) completed in December 2013, which may require further refinement. Additional work on the sector underway as part of MIA and sector-by-sector reduction plans. | |
| Cote D'Ivoire | Initial NAP development using SAICM funds delayed. A 2016 start date is anticipated, but no concrete plan formulated. | |
| Indonesia | A pre-Convention NAP was completed in 2013 and activities and plans for implementation are underway. The government has indicated a willingness to update the NAP to meet Minamata requirements. | |
| Tanzania | Initial meetings and discussions among relevant stakeholders for the NAP have taken place but formal NAP development has not yet begun. | |
| Philippines (Implementation) | In 2014, the Philippine government started a project to address three key areas of the pre-Convention NAP: phase out of mercury in ASGM through the introduction and training of miners on mercury free techniques; helping miners organize; and public awareness and training of rural health workers. Work is now underway to address child labor in ASGM. Steps are also being explored to update the NAP. **Action Challenge Met.** | |

| ZMWG ACTION CHALLENGE | CURRENT STATUS | OVERALL GRADE AND COMMENTS |
|---|---|---|
| **MERCURY EMISSION STANDARDS AND CONTROLS** | | |
| EU issue emission standards for coal-fired power plants | BAT reference document is under development for large coal combustion power plants, and includes mercury emission controls.[12] BAT conclusions including BAT Associated Emission Levels on mercury are expected to be published at the beginning of 2017. In 2015, the EU adopted a directive to limit air pollution from medium combustion plants (below 50MW) – it includes limits for PM, SOx, and NOx which may have a co-benefit reduction effect for mercury. | Global Grade B-<br>This grade reflects the significant steps taken by China and India in promulgating new mercury emission standards, but also reflects the lack of concrete progress in other countries and the challenges facing China in applying these standards at the source. |
| India issue emission standards for coal-fired power plants | Emission standards issued on December 8, 2015. The new standards do not apply to pre-2004 power plants less than 500 MW, so India will need to demonstrate sources responsible for at least 75% of the emissions from this source category are covered by the new standards. **Action Challenge Met.** | |
| South Africa issue emission standards for coal-fired power plants | No formal action taken or underway. Preliminary steps initiated to assess the costs and benefits of mercury emission controls. | |
| China issue emission standards for coal-fired industrial boilers | Emission standard issued on May 30, 2014.[13] **Action Challenge Met.** | |
| China issue emission standards for cement plants and municipal waste incinerators | Emission standard for cement plants issued on December 27, 2013. Emission standards for municipal waste incinerators issued on May 30, 2014. **Action Challenge Met.** | |
| China ensure enforcement of 2010 emission standards for lead and zinc smelters | Significant challenges remain in enforcing the 2010 standards. According to experts, company concerns regarding available monitoring and testing methods have impeded progress in applying the standards. | |
| EU limit national annual mercury emissions | The European Parliament (EP) asked the European Commission (EC) to consider including future emission reduction commitments for mercury in the EU, under the National Emissions Ceiling Directive (NEC). The EP also strengthened emission reduction commitments for PM, NOx and SO2 emissions by making 2025 limits mandatory, which may have a co-benefit reduction effect for mercury. However, the Council of Ministers subsequently weakened the limits for these pollutants. The final agreement is expected to be reached between the EP and Council by mid-2016. | |

[12] See http://eippcb.jrc.ec.europa.eu/reference/BREF/LCP_D1_June_online.pdf.
[13] http://kjs.mep.gov.cn/hjbhbz/bzwb/dqhjbh/dqgdwrywrwpfbz/201405/t20140530_276318.htm.
[14] http://kjs.mep.gov.cn/hjbhbz/bzwb/dqhjbh/dqgdwrywrwpfbz/201312/W020131231370229586806.pdf.
[15] http://kjs.mep.gov.cn/hjbhbz/bzwb/gthw/gtfwwrkzbz/201405/t20140530_276307.htm.

## DISTURBING TRENDS IN GLOBAL MERCURY SUPPLY AND TRADE

### A. China's mercury production is reportedly rising, notwithstanding ongoing demand reduction activities:

i. In 2013, according to experts from the China Nonferrous Metals Association, China produced 1217 metric tons (MT) of mercury, 817 MT from primary mercury mining. In 2014, production increased 20% over 2013, rising to 1471 MT, with 664 MT coming from primary mercury mining.[16] This 1471 MT accounts for over one-third of the entire global mercury supply.

ii. In contrast, mercury use in China should be declining. As reported in China's recent proposal to the Global Environmental Facility (GEF), PVC production in China consumed 720 MT of mercury in 2012, accounting for 60% of total China mercury consumption that year.[17] Based upon these data, China mercury consumption in 2012 was approximately 1200 MT. Consumption in 2013 and 2014 should have been significantly lower, since the Twelfth Five Year Plan for Industrial Clean Production Practices calls for annual mercury consumption to be reduced to 638 MT/yr by 2015.[18] These reductions were based upon the increased utilization of low mercury catalysts in PVC production, and mercury use reductions in battery and lamp manufacturing.

iii. Therefore, with 2014 mercury production at 1471 MT, and mercury consumption presumably less than 1200 MT, China appears to be producing more mercury than it needs.

***Can China phase out primary mercury mining soon if the mercury will not be needed domestically?***

### B. New trading centers emerged due to export bans in the US and EU:

i. Hong Kong is a significant mercury exporter. According to UN COMTRADE and Hong Kong government data, Hong Kong exported over 211 MT of mercury in 2011; over 244 MT in 2012; almost 153 MT in 2013; and almost 103 MT in 2014. Exports were sent to small-scale gold mining countries such as Togo, Sudan, Brazil, and South Africa (as a gateway to ASGM countries in Southern Africa). Both Chinese miners and Chinese-sourced mercury have been widely reported in Ghana.[19]

ii. According to UN COMTRADE data, Singapore exported over 444 MT of mercury in 2011, over 478 MT in 2012, over 293 MT in 2013, and over 111 MT in 2014. Substantial exports were directed toward ASGM countries. Singapore imported huge quantities of mercury from the USA and EU before their export bans went into effect, and significant quantities from Russia, Japan, and Switzerland during this time period. Media reports indicate at least one large European mercury trader relocated its operations to Southeast Asia to avoid the EU export ban.[20]

***Additional national export bans are needed to reduce the global supply of mercury, particularly mercury destined for ASGM.***

[16] See [Shao Zhuqiang, China Nonferrrous Metals Industrial Association, at the First Seminar on Mercury Pollution Control and Monitoring Technology, June 2015. 邵朱强，中国有色金属工业协会：首届汞污染治理与监测管理技术研讨会]
[17] See https://www.thegef.org/gef/project_detail?projID=6921, p. 4.
[18] See http://ghs.miit.gov.cn/n11293472/n11294974/n11296797/n14484271.files/n14484198.pdf
[19] See http://www.theguardian.com/world/2013/jun/06/ghana-arrests-chinese-illegal-miners; https://www.hrw.org/sites/default/files/report_pdf/ghana0515_forinsertlr2.pdf, p. 11.
[20] http://www.businessweek.com/articles/2012-05-24/the-slippery-market-for-mercury#p4.

**C. Mexico has become a new mercury supply source:**

i. According to UN COMTRADE and national government data, Mexico exports surged from 134.2 MT in 2011 to almost 268 MT of mercury in 2013, over 300 MT in 2014, and over 245 MT in the first ten months of 2015. Most of this mercury is going to ASGM countries in South America, including 291 MT to Colombia , 250 MT to Peru, and 133 MT to Bolivia during 2013-2015. At the same time, imports were less than 14 MT in 2011, 27 MT in 2012, less than 1 MT in 2013; and virtually none were reported in 2014 and through the first ten months of 2015.

***While mercury production from reclamation of silver mine tailings and "informal" primary mercury production was previously reported as a Mexico supply source,[21] the jump in the quantities involved and other information points to new or increased primary mercury mining. When the Convention enters into force for Mexico, this primary mined mercury cannot be used for ASGM.***

**D. Constant vigilance will be needed to enforce export bans and Convention restrictions on trade:**

i. According to media reports, hundreds of metric tons of mercury were illegally exported from Germany to Switzerland over the course of several years, and then re-exported overseas, in violation of the EU export ban.[22] The mercury was covered with soil in Germany giving the impression it was mercury-containing waste, in an attempt to bypass the EU export ban. According to local newspaper reports the total amount of mercury illegally exported may amount to more than 1000 MT. Trade intermediaries could be located in Switzerland, the Netherlands and Greece. Letter-box companies in Russia and Belize acted as formal receivers. Over 81 MT of this mercury was in Singapore as of January 15, 2016, awaiting possible sale by the bankruptcy official liquidating the recalcitrant company's assets.

## Implications for INC 7

1. Significant gaps in information on mercury production and trade remain, thereby preventing a satisfactory understanding of the global supply situation.

2. Article 3.4 of the Convention prohibits primary mined mercury from use in ASGM to promote mercury use reductions in the ASGM sector. Article 3.5(b) restricts the reuse of mercury from closing mercury-cell chlor-alkali plants, including reuse for ASGM. Virtually all mercury used in ASGM is released into the environment, making it the largest source of mercury emissions and releases.

3. A substantial portion of current mercury trade is for ASGM, creating a strong financial motivation for companies to bypass restrictions on mercury use and trade. Selling the mercury brings a profit, but complying with the Convention and safely storing/disposing of mercury costs money. Based upon the recent European experience, it is reasonable to anticipate attempts to bypass mercury use and trade restrictions in the Convention.

4. Article 21 reporting must yield timely and quantitative data on mercury production and trade to ensure compliance with Articles 3.4 and 3.5(b), understand the current global mercury supply situation, and monitor Convention effectiveness in achieving global supply reductions. Mercury production data involves few countries, and must be compiled to meet Convention obligations, therefore the reporting burden is minimal. Mercury trade data are easily obtained by requiring that copies of the trade consent form be sent to the Secretariat.

[21] http://www3.cec.org/islandora/en/item/11208-assessment-primary-and-secondary-mercury-supplies-in-mexico.

[22] http://www.bernerzeitung.ch/region/thun/Oberlaender-Firma-erhielt-500-Tonnen-illegales-Quecksilber/story/30997943

- http://www.derbund.ch/bern/kanton/Giftige-Vorwuerfe-gegen-Berner-Unternehmen-/story/15237074
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*This document has been produced with the financial support of the Swedish International Development Co-operation Agency (SIDA) through the Swedish Society for Nature Conservation (SSNC), the European Commission, and the Garfield Foundation. The sole responsibility for the content of the document lies with the Zero Mercury Working Group (ZMWG), thus the views reflected in the document are not necessarily the views of these donors.*