UN environment

GLOBAL MERCURY ASSESSMENT 2018

KEY FINDINGS

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The Global Mercury Assessment 2018 is the fourth such assessment undertaken by The United Nations Environment Programme (UN Environment), following earlier reports in 2002, 2008, and 2013. It is the second assessment produced by UN Environment in collaboration with the Arctic Monitoring and Assessment Programme (AMAP). The assessment is supported by a technical background document, the chapters of which have been prepared by teams of experts and peer-reviewed for scientific quality. This summary document presents the main findings of the technical document in plain language. Recognizing the relevance of the results of the Global Mercury Assessment 2018 for policy makers, this section presents key findings of highest policy relevance.

Larry C. Price

KEY FINDING 1

A new global inventory of mercury emissions to air from anthropogenic sources in 2015 quantifies global emissions from 17 key sectors at about 2220 tonnes.

There are also smaller anthropogenic sources that it is not yet possible to quantify in the detailed global inventory. Total emissions from these additional sources are evaluated to total of the order of tens to hundreds of tonnes per year. They would therefore not significantly change the total global emissions inventory but may be of local or regional significance.

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KEY FINDING 2

Estimated global anthropogenic emissions of mercury to the atmosphere for 2015 are approximately 20% higher than they were in updated estimates for 2010.

Continuing action to reduce emissions has resulted in modest decreases in emissions in North America and the European Union. Increased economic activity, notably in Asia, and the use and disposal of mercury-added products appears to have more than offset any efforts to reduce mercury emissions.

Larry C. Price

KEY FINDING 3

Emissions patterns in 2015 are very similar to those in 2010.

The majority of the 2015 emissions occur in Asia (49%; primarily East and South-east Asia) followed by South America (18%) and Sub-Saharan Africa (16%). Emissions associated with artisanal and small-scale gold mining account for almost 38% of the global total and are the major contributor to the emissions from South America and Sub-Saharan Africa. In other regions, emissions associated with energy production and industrial emissions predominate.

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KEY FINDING 4

Stationary combustion of fossil fuels and biomass is responsible for about 24% of the estimated global emissions, primarily from coal burning (21%).

Main industrial sectors remain non-ferrous metal production (15% of the global inventory), cement production (11%) and ferrous metal production (2%). Emissions from waste that includes mercury-added products comprise about 7% of the 2015 global inventory.

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KEY FINDING 5

Human activities have increased total atmospheric mercury concentrations by about 450% above natural levels.

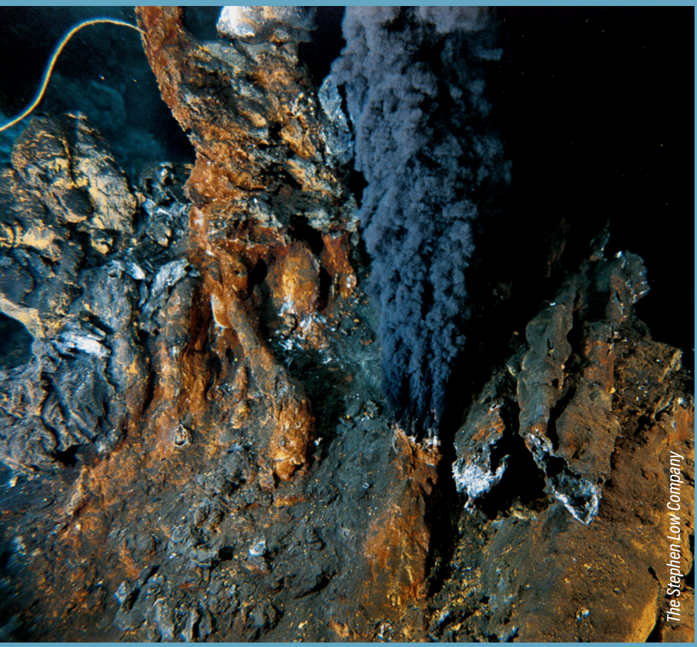
This increase includes the effects of mercury emitted from human sources in the past which is still circulating in the biosphere, known as legacy mercury. Historical emissions up to the end of the 19th century, mainly from gold, silver, and mercury (cinnabar) mining and refining in the Americas, contributed more to the present-day anthropogenic mercury in soils and the oceans than all 20th century industrial sources combined. The presence of legacy mercury and the potential for climate change to influence its remobilization complicates our ability to assess potential future changes.

Larry C. Price

KEY FINDING 6

Artisanal and small-scale gold mining introduced about 1220 tonnes of mercury into the terrestrial and freshwater environments in 2015, but this amount cannot be reliably separated between discharges to soils and releases to water.

Global releases of anthropogenic mercury from other sources to aquatic environments totalled about 580 tonnes in 2015. The major sectors contributing to these 580 tonnes are waste treatment (43%), ore mining and processing (40%), and energy (17%).



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KEY FINDING 7

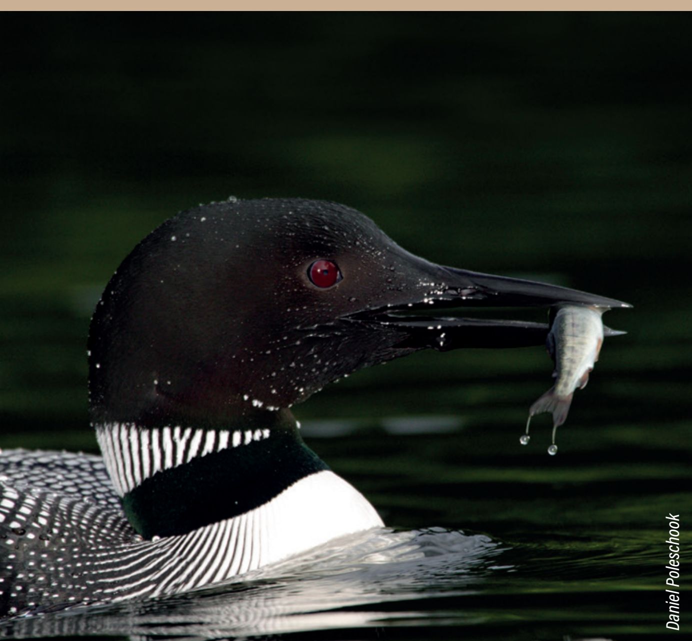
Natural production of methylmercury in the oceans and in some lakes is no longer limited by the input of inorganic mercury.

Other factors such as climate change, biogeochemistry, and changes in soil processes are playing increasingly important roles in the mercury cycle, affecting the distribution and chemical interactions of mercury in the environment.

KEY FINDING 8

Reductions in mercury emissions and resulting declines in atmospheric concentrations may take time to show up as reductions of mercury concentrations in biota.

For some time to come, methylmercury will continue to be produced from the legacy mercury already present in soils, sediments, and aquatic systems.



KEY FINDING 9

Mercury loads in some aquatic foodwebs are at levels of concern for ecological and human health.

Anthropogenic mercury emissions and releases, current and legacy, are the major contributors to increased mercury levels and exposure.

KEY FINDING 10

All people are exposed to some amount of mercury.

For many communities worldwide, dietary consumption of fish, shellfish, marine mammals, and other foods is arguably the most important source of methylmercury exposure. Exposures to elemental and inorganic mercury mainly occur in occupational settings (including artisanal and small-scale gold mining) or via contact with products containing mercury. There remains high concern for vulnerable groups including various indigenous populations with high dietary or occupational exposure to mercury.

The Global Mercury Assessment 2018 is based on improved information for estimating emissions and releases and improved understanding of the mercury cycle in the environment. In addition, the 2018 report provides new information about mercury exposure in animals and humans. These improvements are the result of mercury research and monitoring around the world. They provide a strong base of knowledge to support actions to reduce mercury emissions and releases and to reduce ecosystem and human exposure.

Further improvements in our understanding of mercury can further refine the ability to identify efficient actions to reduce mercury pollution and its effects. Such improvements include basic research on aspects of the mercury cycle as well as systematic monitoring methods to expand the geographic coverage of measurements of mercury pollution. As a chemical element, mercury cannot be destroyed. Mercury removed from fuels and raw materials in order to reduce emissions will result in mercury-contaminated waste, which in turn can be a source of releases. Mercury removed from emissions and from releases must still be managed responsibly to avoid it becoming a waste management problem or a secondary source. Understanding how mercury removed from current uses and sources is currently managed and how it can be safely managed and stored in the future will help account for the full life-cycle of mercury that is mobilized through human activity, safeguarding the environment and humans when it is removed.

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