

# UNEP GLOBAL MERCURY PARTNERSHIP

## Mercury releases from coal combustion Area\*



### Partnership Area Leads:

Lesley Sloss, International Energy Agency – Clean Coal Centre

Peter Nelson, Macquarie University – Australia



### ISSUE

Having more than tripled since 1970, burning of coal is, after artisanal and small-scale gold mining, the largest single anthropogenic source of mercury air emissions, with 21% of the global emissions estimated at approximately 2220 tonnes per year<sup>1</sup>. There is now also growing evidence about the significance of mercury releases to land and water from coal-fired power plants, as well as coal washing<sup>2</sup>.

Although coal contains only low concentrations of mercury, it is burnt in very large volumes. And despite a growing number of countries moving away from coal, global demand is expected to remain steady over the next 5 years<sup>3</sup>.

Up to 95% of mercury releases from power plants can be reduced by improving coal and plant performances and by optimizing control systems for other pollutants.

<sup>1</sup> United Nations Environment Programme 2019. Global Mercury Assessment 2018.

<sup>2</sup> Streets, D.G., Horowitz, H.M. Jacob, D.J., Zifeng Lu, Z., Levin, et al., Total Mercury Released to the Environment by Human Activities, Environ. Sci. Technol. 2017, 51, 5969–5977.

<sup>3</sup> International Energy Agency, Market Report Series: Coal 2018, Analysis and Forecasts to 2023.



### STRATEGY

The Partnership Area provides easy to access documentation and online tools to allow countries to determine appropriate measures for mercury reduction from coal-fired utilities in a site and source specific manner, taking economic, geographic and technological limitations into account.



### CONTRIBUTION TO THE IMPLEMENTATION OF THE MINAMATA CONVENTION

The Partnership Area provided significant contribution to the Guidance on best available techniques and best environmental practices in relation to emissions of mercury, which was adopted by the Conference of the Parties to the Minamata Convention at its first meeting to support Parties in the implementation of their obligations under the Convention.

Expert members within the Partnership Area provide training and technical guidance on the measurement and monitoring of emissions from the coal sector and the determination of accurate emission inventories.



### OBJECTIVE

The Partnership Area aims to support continued minimization and elimination of mercury releases (to air, water and land) from coal combustion where possible. It also aims to provide technically sound information on cost effective approaches for enhancing reductions of mercury emissions, particularly for developing countries and countries with economies in transition.





## OUTREACH ACTIVITIES

The Partnership Area has facilitated desk and field projects in China, the Russian Federation, India, South Africa, Indonesia and Vietnam. These include studies to produce accurate emission inventories for the coal sector as well as demonstration projects for mercury reduction at full-scale utilities.

The Partnership Area webpage hosts a wealth of documentation on mercury control options in several languages. It also provides access to a free downloadable tool, the interactive Process Optimization Guidance (iPOG) for Reducing Mercury Emissions from Coal Combustion in Power Plants, which allows users to estimate mercury emissions from a coal plant as well as estimate the effectiveness of potential control options<sup>4</sup>.

Reports are available on the application of mercury control technologies as well as the economics of these systems and the emerging international market. A report highlights the challenges faced in selected countries in South East Asia and discusses the specific control strategies which may be most appropriate in each region.

<sup>4</sup> [web.unep.org/globalmercurypartnership/our-work/mercury-control-coal-combustion/process-optimization-guidance](http://web.unep.org/globalmercurypartnership/our-work/mercury-control-coal-combustion/process-optimization-guidance).



## FEATURED PROJECTS

The Partnership Area works closely with the Clean Coal Centre and has been an integral part of annual “MEC” workshops focusing on mercury and multi-pollutant emissions from coal combustion. More information is available at: [www.mec-workshops.org](http://www.mec-workshops.org).

The Partnership Area has provided a training course on mercury monitoring and control for the Colombian Geological Survey and, during a visit to the Paipa Power Plant, provided site-specific guidance on mercury reduction and waste management.

## RELEVANT PROVISIONS OF THE MINAMATA CONVENTION ON MERCURY:

**Article 8 (Emissions)** concerns controlling and, where feasible, reducing emissions of mercury and mercury compounds to the atmosphere from point sources, amongst which coal-fired power plants and coal-fired industrial boilers, listed in the corresponding **Annex D**.

For new sources, Parties shall require the use of best available techniques and best environmental practices (BAT/BEP) 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 them.

For existing sources, Parties shall implement, as soon as practicable but no more than ten years after the date of entry into force of the Convention for them, either a quantified goal, emission limit values, BAT/BEP, a multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions, and/or alternative measures to reduce emissions.

Amongst others, Article 8 also requires Parties to establish and maintain an inventory of emissions from relevant sources.



## FUTURE PLANNED ACTIVITIES

The Partnership Area leads are currently working on the development of projects to reduce emissions from the coal combustion sector in emerging economies.



## COLLABORATION WITH OTHER PARTNERSHIP AREAS AND RELEVANT STAKEHOLDERS

The Partnership Area works closely with the Mercury Air Transport and Fate Research Partnership Area to share information on emissions and inventories.



**Read more about the UNEP Global Mercury Partnership and how to become a Partner:**

[web.unep.org/globalmercurypartnership](http://web.unep.org/globalmercurypartnership)

**Contact the Partnership Area leads:** [lesley.sloss@iea-coal.org](mailto:lesley.sloss@iea-coal.org) / [peter.nelson@mq.edu.au](mailto:peter.nelson@mq.edu.au)