

Submission to the Joint Standing Committee on Treaties (Minamata Convention on Mercury)

Professor Emeritus Peter Nelson

Department of Earth & Environmental Sciences, Macquarie University

I have had a long history contributing to Australian mercury research and management policy as an academic at Macquarie University. In recent years these contributions have gone on to have global impact through the development of the new UN Minamata Convention on Mercury, and my direct involvement in supporting global assessments and guidance for the control of environmental mercury. I strongly support ratification of this important international agreement to address this major environmental and human health issue.

Mercury is a global, regional and national challenge in terms of threats to human health, particularly to the health of pregnant woman and babies world-wide through the eating of contaminated fish. As seafood provides 2.5 billion people with at least 20% of their animal protein this can have major impacts on the burden of disease. In small island states and coastal regions this amount can increase to 50%. The benefits of reducing exposure to mercury are large. A US study estimated cumulative lifetime benefits from the Convention for individuals affected by 2050 at \$339 billion.

My background in mercury

I initiated a research program on mercury in the early 2000s with the support of government and industry to explore the contribution of industrial emission sources such as coal combustion in Australia. I identified a major error in global estimates of Australian emissions and was instrumental in having the estimates reduced by about 10-fold. Subsequently I won two tenders with the Commonwealth to undertake studies of our mercury sources, transport and fate, and of existing legislation and guidelines relevant to mercury control. The resulting reports (Nelson *et al.* 2007; Nelson *et al.* 2009) were influential in informing Australia's response to the development of the Convention, including the Final Regulation Impact Statement on the National Phase down of Mercury.

Macquarie's work on the Convention identified the importance of industrial sources including coal combustion in large coal-fired power stations. It also revealed that the smelter at the Kalgoorlie Gold Mine was responsible for 50% of Australia's mercury emissions. The magnitude of this contribution was a leading driver for the mine owners to develop new processing technology which replaced the smelter and eliminated the mercury emissions (Fisher and Nelson 2020).

As a result of our research and reports to Government, I was invited to be a member of the expert group developing the 2013 and 2015 Global Mercury Assessments (GMA). The GMA is facilitated by the UN every 5 years and is a major study of sources, emissions, releases and transport of mercury as well as its impacts in the environment. I contributed expert advice on emissions in Australia and Oceania, and corrected another error in the way coal combustion emissions were estimated globally.

The text of the Convention is accompanied by a range of guidance documents which will support its implementation. One of the most substantial of these relates to industrial emissions from coal, smelting, cement and waste incineration sectors. I was nominated by Australia as one of only three experts to represent the JUSCANZ group of nations on the development of this guidance. I was the lead author for the guidance on non-ferrous smelting and roasting and also contributed to the overall document, now published (UNEP 2019).

I continue to be heavily involved in international activities in support of the implementation of the Convention. I have co-led the UNEP Global Mercury Partnership (GMP)¹ on Mercury Releases from Coal Combustion since 2016. The GMP works closely with stakeholders to assist in the timely ratification and effective implementation of the Convention.

I have recently produced a report commissioned by the GMP on mercury from the non-ferrous mining and smelting sector which will guide further work on the contribution from this sector to mercury emissions and releases. I am also beginning a major study funded by the Global Environment Facility² which will assess existing and future emissions reduction from the coal sector toward the implementation of the Minamata and Stockholm Conventions.

Benefits of the Convention and Australian Ratification

The Convention has major public health benefits in both the short and long term by establishing an internationally agreed process for eliminating or reducing the total stocks of background mercury in the environment. National and global reductions in mercury emissions have far reaching impacts. As mercury has a long-life in the environment, any reduction contributes to environmental quality and human health in the future. Ratification will enable Australia to participate in global efforts to protect the environment and human health from the harmful effects of mercury exposure. As a global pollutant, reduction of mercury requires participation of the entire global community in eliminating or reducing mercury. Australia is uniquely placed through its position in the Southern Hemisphere to play an important role in the monitoring of the effectiveness of the Convention in reducing this exposure.

The Convention addresses concerns and devises controls on a global and ubiquitous metal that is used in everyday objects, and is released to the atmosphere, soil and water from a variety of sources. The Convention includes a ban on new mercury mines, the phase-out of existing ones, the phase out and phase down of mercury use in a number of products and processes, control measures on emissions to air and on releases to land and water, and the regulation of the informal sector of artisanal and small-scale gold mining. The Convention also addresses interim storage of mercury and its disposal once it becomes waste, sites contaminated by mercury, and health issues.

Ratification will ensure Australia reduces mercury pollution broadly from our activities. Importantly the Convention recognises the challenges in eliminating mercury in the environment and the time it will take to achieve substantial reductions, particularly in developing countries. For example, the Convention focuses on the supply of mercury-added products through manufacture, import and export of such products rather than on their use, which may therefore continue until the end of their lifetime. Similarly, the Convention differentiates between measures required for new sources and potentially less stringent ones required for existing sources.

Ratification will also ensure Australia participates productively as a responsible global citizen in international affairs and as a responsible trading partner without major regulatory or financial impacts. The report prepared for the Commonwealth, *Ratification of the Minamata Convention on Mercury: Final Regulation Impact Statement*³ (the RIS) effectively summarises the advantages for

¹ <https://web.unep.org/globalmercurypartnership/>

² <https://www.thegef.org/> The Global Environment Facility (GEF) was established 30 years ago on the eve of the Rio Earth Summit to tackle our planet's most pressing environmental problems. Since then, it has provided more than \$21.5 billion in grants and mobilized an additional \$117 billion in co-financing for more than 5,000 projects and programs. The GEF is the largest multilateral trust fund focused on enabling developing countries to invest in nature, and supports the implementation of major international environmental conventions.

³ <https://www.environment.gov.au/protection/chemicals-management/mercury>

Australia in being fully engaged in further development of the Convention, and the disadvantages of non- ratification in our ability to influence future directions. The RIS also showed that some costs would be imposed on industry and government by ratification. However, the detailed cost–benefit analysis included in that report calculates that ratification would deliver a net benefit to the Australian economy.

For these reasons I strongly endorse ratification and foresee major opportunities for Australia in future global research and development addressing mercury pollution.

References

- Fisher, J. A., Nelson, P. F., 2020. Atmospheric mercury in Australia: Recent findings and future research needs. *Elementa: Science of the Anthropocene* 8.
- Nelson, P. F., Nguyen, H., Malfroy, H. (2007). Study of Current Regulatory and Voluntary Measures related to mercury in Australia. Final report to the Australian Department of Environment and Water Resources. RFQ 101/0607DEW 135pp.
- Nelson, P. F., Nguyen, H., Morrison, A. L., Malfroy, H. J., Cope, M., Hibberd, M., Lee, S. H., McGregor, J., Meyer, C. P. (2009). Mercury Sources, Transportation and Fate in Australia. Final report to Department of Environment Water Heritage & the Arts (DEWHA), 183pp.
- UNEP (2019). Guidance on best available techniques and best environmental practices. Minamata Convention on Mercury. Geneva, Switzerland, Secretariat of the Minamata Convention on Mercury, 193pp.
http://mercuryconvention.org/Portals/11/documents/publications/BAT_BEP_E_interractif.pdf