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Nordic Environment is a newsletter published by the environmental sector within the Nordic Council of Ministers, the official body of co-operation between the Nordic governments. The newsletter provides an insight into the extensive environmental co-operation in the Nordic countries.



Mercury

– Nordic countries show the way to a global agreement

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Mercury is one of the most toxic chemicals in the world, with effects that harm both health and the environment. Mercury is also a global problem because it spreads with the wind – mercury emitted from a coal-fired power station in one part of the world can pollute the Arctic environment, thousands of kilometres away, a few months later.

International initiatives are therefore needed in order to manage the problems arising from mercury. The Nordic countries have been working on the issue, for example via the Nordic Council of Ministers, by applying consistent and target-oriented political measures and providing financial support in the international arena, aimed at tackling risks associated with mercury.

In 2009, the UN Environmental Programme (UNEP) decided to initiate a round of negotiations about a legally binding instrument on mercury. The Nordic countries have taken on the responsibility of arranging the first meeting in Stockholm on 7–11 June 2010. Sweden is hosting the conference (INC1, first Intergovernmental Negotiating Committee), which is being funded by the Nordic Council of Ministers, the organisation for intergovernmental cooperation in the Nordic countries.

“The cooperation on mercury between the Nordic countries and within the framework of the Nordic Council of Ministers is an excellent example of how the Nordic countries can work together to influence and drive global processes. Mercury is a threat to our health and our environment, and legally-binding measures

are needed to limit and, in some cases, ban the use of mercury. The UN conference in Stockholm is the first step towards a global and legally-binding agreement,” says the Secretary General of the Nordic Council of Ministers, Halldór Ásgrímsson, former Prime Minister of Iceland.

This issue of *Nordic Environment* presents some of the contributions the Nordic Council of Ministers is making to the global mercury process, such as projects and reports managed by, for example, the working group for chemical issues, the Nordic Chemical Group (NKG). Most of the reports are available on the website for official Nordic cooperation, www.norden.org.

The Nordic Council of Ministers, formed in 1971, is the forum for Nordic intergovernmental co-operation between Denmark, Finland, Iceland, Norway, Sweden and the autonomous areas of Greenland, the Faroe Islands and the Åland Islands.

Mercury-free substitutes available

Many mercury uses in products and processes can be eliminated, if this is deemed politically desirable. The Nordic study ‘Mercury substitution priority working list’ showed that, from a list of 72 identified intentional uses of mercury, a total of 43, nearly two-thirds, were regarded as readily substitutable, for example batteries, thermostats and manometers.

Other uses (19 out of 72) where alternatives are either already available or in the pipeline, but face institutional (or structural), social or technical challenges, need longer phase-out periods. These examples include hospital and laboratory equip-



ment. For a limited number of uses (10 out of 72), substitution or phase-out were considered to face challenges, primarily due to socio-economic considerations (small-scale gold mining, low-energy light sources, dental amalgam).

The study recommends international co-operation to discuss and develop a prioritised phase-out list for intentional mercury use. The list would serve as a valuable tool in mutual communication and discussion of global mercury reductions and as a tool for gradual reduction.

Mercury causes massive financial losses to society

In a socio-economic perspective, mercury pollution results in costs to society. Examples are the cost of damage from negative impact on human health and loss of income from reduced commercial fisheries. The most serious impact on human health is neurological damage leading to impaired development of the brain, i.e. loss of IQ (Intelligence Quotient) points.

The study 'Socio-economic costs of continuing the status-quo of mercury pollution' assessed the costs associated with loss of IQ following consumption of contaminated fish. Costs induced by reduction in IQ include, for example, loss of earnings and loss of education. The assessment was based on a status quo scenario where it was assumed that no further action would be taken to control mercury emissions in the period 2005 to 2020.

The annual cost of damage caused by ingestion of methyl mercury is predicted to be approximately USD 10 billion in 2020,

assuming a status quo scenario. However, the total cost to society of damage caused by mercury pollution is likely to be considerably higher since the analysis was limited to costs related to loss of IQ and did not include other potential costs to society.

Mercury – the Arctic Perspective

Mercury accumulates in animals in its most toxic form, methyl mercury, and also 'biomagnifies' through food chains, resulting in very high levels in top feeders. In the Arctic these include predatory fish, seals, polar bears and, above all of these, certain Arctic indigenous peoples that consume these species.

For nearly 20 years, the Arctic Monitoring and Assessment Programme (AMAP) has provided governments and stakeholders with scientific assessments about environmental contamination and climate change in the Arctic. AMAP has produced two assessments involving mercury, and the third assessment is due for submission in 2011. The Mercury Assessment in the Arctic, like all past AMAP assessments, is financially supported by the Nordic Council of Ministers.

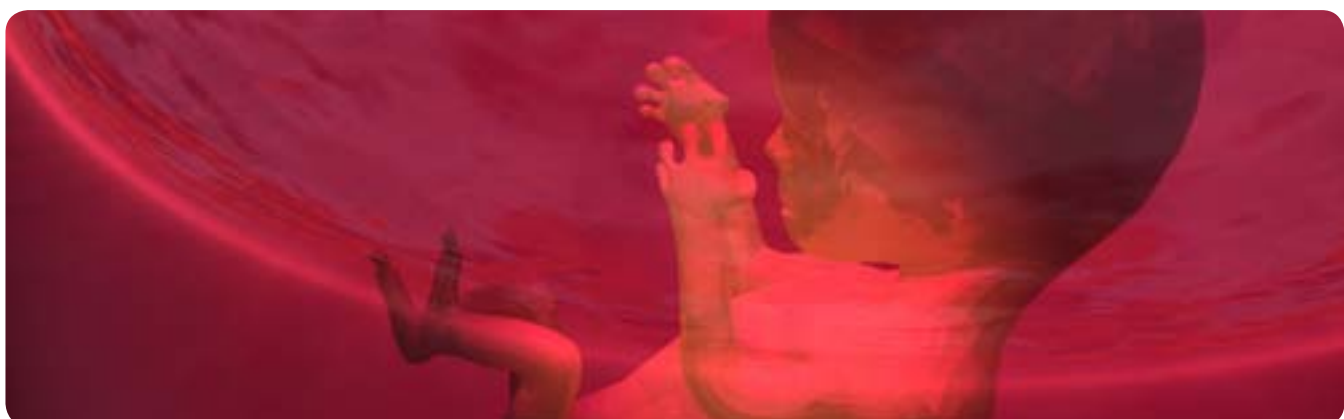
Mercury is a global pollutant so evaluating mercury contamination in the Arctic, and options for reducing this, means that AMAP must consider global sources of mercury. AMAP has recently co-operated with UNEP Chemicals and produced the most comprehensive information available on global emissions of mercury to the air from anthropogenic sources. The report was submitted to the UNEP Governing Council in 2009, and was a factor in the Council's decision to set up the INC.



Decreasing mercury deposition in the Nordic and Arctic region

Data from measurement sites in Norway, Sweden and Finland shows that mercury deposition decreased in the Nordic region, including sensitive Arctic areas, during the period 1995–2006. A project financed by the Nordic Council of Ministers concludes that this is probably the result of reduced mercury emissions from, for example, power production facilities on the European continent.

Earlier measurements from the west coast of Sweden show that this trend started around 1990 when many old power plants and other industries closed down in Eastern Europe. The present status regarding mercury pollution in the Nordic countries including the Arctic environment is investigated using data from air monitoring programmes, moss surveys and the results from research projects on mercury. The final results of the Nordic project will be presented later this year.



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Nordic environmental co-operation

The Nordic Environmental Action Plan 2009–2012 forms the framework for environmental co-operation both within the Region and in relation to the adjacent areas, the Arctic, the EU and other international forums. Priorities include the climate and the air, marine and coastal zones, biological diversity and sustainable consumption and production.

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The objective is to consolidate the position of the Nordic Region as a world leader on the environment. Particular attention is paid to international issues where partnership allows the Nordic countries to exert greater influence and generate the greatest possible Nordic synergy.

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Unused potential for reducing mercury

There is great unused potential in new technologies for reducing global mercury emissions. This is pointed out in a recent study consisting of case studies about companies providing the technologies. Examples presented in the study are mercury emission reduction systems for waste incinerators, metal and power plants, gas processing plants and small-scale gold mining.

One of the technologies illustrated is the Finnish company Outotec's system for reducing mercury emissions, used in one of the main sources of mercury emission, namely non-ferrous metal production. Outotec's mercury scrubber technology is used in 38 metal plants around the world. The total amount of mercury removed with these scrubbers is estimated to be of the magnitude of 300 metric tons per year – twice the current total mercury emissions from Europe. However, there is still great potential for the technology in some countries.

The Nordic countries have been forerunners in phasing out mercury in products, as exemplified in a publication about phasing out mercury in the hospital sector in Sweden and dental amalgam in Norway.

The publication, which will be presented at a side event to the INC1, is financed by the Nordic Council of Ministers and the Danish Environmental Protection Agency and prepared by the consulting company COWI.



PHOTO: PETER APPEL

Black is beautiful

Many African women use soap containing mercury to bleach their skin. The mercury passes through the skin and reduces the melanin of the pigmentation. Mercury can be particularly dangerous for the nervous system, including the brain of the foetus of pregnant women. Children of mothers who use bleaching soaps therefore have a high risk of being mentally and physically impaired.

The use of mercury for skin bleaching not only causes severe health problems for sub-Saharan Africa, but also adds to the ever-increasing amount of mercury in drainage systems and oceans.

The Nordic Council of Ministers, together with MS Uganda and the Geological Survey of Denmark and Greenland (GEUS), financed an information campaign aimed at female and male users of bleaching soaps. The campaign 'Black is Beautiful' proved very successful in increasing awareness in Uganda of the health hazards caused by using mercury soap. The project, which started in 2007, used theatre performances and information meetings to deliver the message.

