

Mercury - background for abating mercury pollution

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Director General Carl, Ladies and Gentlemen, good afternoon.

I would like to thank the European Commission for inviting me to give this introductory speech on the background for abating mercury pollution. First, a few words about the experience of my country, Finland, on combating mercury pollution. The problems mercury was causing to human health and the environment were discovered in Finland already in the 1960s. However, we have not been able to solve these problems, even if we have got support from the European Union and other regional activities. More than 90 % of the mercury in our lakes comes via atmospheric transport from sources abroad. Model calculations made within the UNECE framework indicate that the mercury levels in fish will not decrease to natural levels unless more efficient emission control measures are taken. National and even regional actions decided upon so far are not sufficient. Further regional and global actions are needed.

A series of International Scientific Conferences on Mercury as a Global Pollutant has been organized since 1990. The eighth conference was held in Madison, Wisconsin, USA in August 2006. More than 1 100 scientists and other experts from all over the world discussed global, regional and local problems caused by mercury and the key findings were presented in a Conference Declaration. The declaration addresses several policy relevant questions concerning sources of atmospheric mercury, the exposure to methylmercury and its effects on humans and wildlife as well as socioeconomic consequences of mercury pollution.

The scientific evidence clearly shows that the global mercury problem is driven by emissions of mercury into the air, the subsequent atmospheric transport and deposition of mercury and finally the biological transformation and accumulation in aquatic ecosystems. This chain causes unacceptable risks for human populations and wildlife. Mercury pollution can be observed all around the globe, far away from pollution sources, for example in the Arctic. In fact, measurements from a range of biota in remote areas, particularly in parts of northern Canada, show increasing trends over the past

30 years. At the same time decreasing trends have been observed in areas closer to known sources of emission.

During the past 20 years emissions have decreased substantially in North America and Europe. However, the observations on the atmospheric pool of mercury suggest that global mercury emissions may, in fact, be increasing. This is due to increasing emissions in other regions. The burning of coal in small-scale power plants and residential heaters, particularly in Asia, are major sources of current mercury emissions. These emissions are likely to increase significantly due to economic and population growth in this region.

Due to its toxicity mercury has caused a variety of adverse impacts on human health and the environment throughout the world. Human exposure exceeding safe levels has been observed across geographic, social, economic, and cultural boundaries. For instance, long-lasting effects of fetal methylmercury exposure have been described in children throughout the world. Methylmercury can pass the placenta and thus affects a growing fetus resulting in subtle effects, for example on children's learning ability.

The main concern for humans is the exposure to methyl mercury in fish. Almost all of the mercury in fish is methylmercury and nearly all methyl mercury exposure to humans comes from fish consumption. Even if the mean exposure is generally well below the levels of tolerable intakes set by the WHO, people who eat a lot of fish are exposed to levels exceeding these recommendations. Exposure to methyl mercury from fish may increase the risk of adverse cardiovascular effects and reduce the benefits of the fatty acids typical for a fish diet. In large regions of northern Europe, USA and Canada, use of fish for human food has been restricted due to high fish mercury content.

As a matter of fact, mercury is threatening fish as a global food source. Besides the utmost importance to many native cultures, fish is a valuable component of the human diet in many parts of the world, providing nutrients that are not available in alternative food sources. Contamination of fish can also bring serious economic problems to communities and regions economically dependent on. Because of the worldwide export of commercially caught fish, mercury contamination of lakes, rivers, and especially oceans is a truly global issue, affecting fishing industries and fish consumers around the world.

Long-living fish eating predators atop of aquatic food webs are at the highest risk for exposure, accumulation and toxicity. These species include predatory fish, mammals - such as mink, otter, polar bears, and seals - and fish-eating birds. There are also particularly vulnerable ecosystems such as Arctic ecosystems, wetlands, some tropical ecosystems and soil microbial communities. In the

Arctic, marine food chains reach harmful mercury levels and evidence of increasing concentrations is frequently found.

Measures to control mercury pollution often show results with a delay. The response to reduced mercury emissions depend considerably on local characteristics and other factors and the delay can be even several decades. For example the monitoring of Swedish and Finnish lakes indicates that, after reducing emissions, environmental levels of mercury, for example in freshwater fish, have decreased significantly, but within the time frame of one to two decades.

Mercury is not only a problem of Northern countries. On the contrary, mercury pollution is a growing problem in developing countries. Artisan gold mining is an example of the complexity of the mercury problem. Poverty and high gold prices have stimulated the proliferation of small-scale mining operations where mercury is used to amalgamate gold. Tens of millions of miners and their families are exposed to toxic forms of mercury. This source is actually a significant fraction of the modern anthropogenic load to the environment. Any policies in industrialized countries which lower the mercury price on the global market do promote continued and even higher use of mercury in small-scale gold mining. This results in an increased risk for humans and the environment. On the other hand the replacement of this practice with mercury-free technology in gold mining may have even more severe acute risks for the workers if the use of mercury is replaced by cyanide.

The trade of mercury and mercury-containing products is significant, and some of it is illegal, uncontrolled or unregulated. This significant global flow of mercury still remains poorly understood. While the overall production of mercury has decreased in recent years, significant amounts are still moving on the global market. The growing demand in many developing countries is of particular concern. The reduction in mercury use in developed countries has decreased the demand for mercury, and this has kept the price low. This has encouraged ongoing, and in some cases even increased use of mercury and outdated mercury technologies in some less-developed countries. As mercury regulations and restrictions are less comprehensive and the enforcement is less strict in many developing countries and countries with economies in transition these trends on the global market have caused an uneven burden of risks for the health and environment in poor countries. It is clear that national measures are not sufficient for controlling products on international markets and to combat illegal trade on mercury.

The evaluation of policies for reducing human and ecosystem exposure requires a global perspective and the examination of the whole life cycle of mercury. Social, cultural and economic aspects have to be taken into account. Sufficient worldwide emission reductions can only become true through regional and global action. All mercury use - such as gold mining and mercury use in

chlor-alkali production and consumer products - and all subsequent local emissions, for example from waste incineration and coal combustion facilities, add to the global mercury pool. The total intentional use of mercury should be minimized and the surplus of mercury re-entering the market must be stopped. Therefore, further global actions are needed. Due to the various factors involved the European Union regards a legally binding instrument as the best way forward in abating the global mercury pollution.

I hope I have been able to give you an overview of the reasoning why global action on mercury is needed. The EU has an important role in this process and the EU strategy on mercury was an important step in the right direction. This conference will certainly stimulate fruitful discussions on the global process to reduce mercury demand and supply and to mitigate the problems caused by mercury.

Thank you for your attention.