



REGERINGSKANSLIET

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*Division for Ecomanagement Strategies and
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Head of Section

Viktorija Ljung

Telephone +46 8 405 21 53

E-mail

viktorija.ljung@environment.ministry.se

**Phase-out, Collection and Deep Rock Terminal Storage
of Mercury - The Swedish Experience**

Introduction

Since the beginning of the 1990's, substantial action has been taken by the Swedish Government and Parliament in the mercury field, and new measures are in the process of being developed and adopted. This presentation will briefly present Swedish environmental policy and chemical policy in general and the actions that have been taken and are in the process of being taken to reduce the amount of mercury in the society and to dispose of mercury waste in a safe manner.

The Swedish Environmental Objectives

Since 1999, Swedish environmental policy has been structured in a framework of general objectives for the environment. The primary environmental objective is to *hand over to the next generation (2020) a society in which the major environmental problems have been solved*. To achieve this, 15 environmental quality objectives have been adopted, which form the basis for new measures and actions to be taken in the environmental field, both by governmental and private actors. For breaking the mercury cycle, the most relevant objectives are *A Non-Toxic Environment* and *A Good Built Environment*. One of the outcomes within one generation for the objective *A Non-Toxic Environment* should be that the environment be free from man-made substances and metals that represent a threat to human health or biological diversity. This means that the levels of substances occurring naturally in the environment must be close to background levels, while the levels of man-made substances must be close to zero. One of the outcomes for the objective *A Good Built Environment* should be for example that land and water areas where people live and work be free of toxic and dangerous substances and other pollutants.

A new policy for chemicals

Sweden has placed the control and use of chemicals high on the agenda for many years. With the objective *A Non-Toxic Environment* as a starting point, a new strategy with interim targets has been developed. Broadly, the targets are as follows. Information on chemicals used on the market should be available before the end of 2010, otherwise they will be phased out. The chemicals industry is responsible for presenting the required information. A general approach to risk assessment will be used. As early as 1999, the Parliament took the decision to gradually phase out persistent and bioaccumulating substances by 2015. The Swedish Chemicals Policy focuses in particular on eliminating the use of substances that are persistent and liable to bioaccumulate. This is considered necessary even if we do not have full knowledge of the toxic properties of the chemicals in question.

Swedish Policy for Mercury

Since the beginning of the 1990's, the Government and Parliament have taken a number of decisions on measures to restrict the flow of mercury in society. Several new measures will need to be decided on in the next few years if the Non-Toxic Environment and Good Built Environment objectives are to be met regarding mercury. The Swedish strategy for mercury consists of measures to:

- reduce the input of mercury into society by imposing a ban on it in products and processes
 - collect mercury from society's so-called "hidden mercury store"
 - effect the terminal disposal of mercury so that future generations are not harmed.
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- Reduction of the input of mercury into society

It has been forbidden to use mercury in the manufacture of certain new products and to sell such products as mercury thermometers since 1992. This ban was supplemented in 1997 with a ban on the export of mercury from Sweden. Further bans on mercury in, for example, analysis chemicals and reagents have been reported to the EU and WTO and the plans are to introduce them in 2004. In addition, there are plans to introduce a ban on the use of mercury in the chlor-alkali industry from 2009 onwards. On the EU level a ban will enter into force in 2003 on using mercury in the production of cars and a ban for mercury in electric and electronic products is currently being negotiated. Supplementary to legislative measures, the use of mercury has also been reduced on a voluntary basis. There has been a major decrease in the use of mercury in dental care after a voluntary commitment from the dental health authorities in 1995. As a member of the European Union, Sweden may not introduce a ban on products containing mercury without acceptance from the EU, which is a factor that slows down the speed of Swedish mercury policy. An important task is therefore to push for decisions on the phase-out of mercury in goods, products and production processes to be taken on a European level, and in the long term also on a global level.

- Collection of mercury

Between 1995 and 1999, the Government put almost SEK 30 million into an action programme for the collection of mercury. This programme was implemented by the Swedish Environmental Protection Agency in cooperation with Swedish county administrative boards and municipalities. The programme included projects for the inventory and collection of clinical thermometers, mercury in technical goods and products, metallic mercury on shelves and in storerooms and historical mercury. Schools, universities and colleges have been purged of mercury and a project to identify hidden mercury in industry has also been carried out. The world's first mercury-tracker dogs, Ville and Froy, were used in the projects. In addition, previously unemployed electricians were also hired as "mercury hunters", with the task of identifying mercury in goods and products. The project included many awareness-raising activities, which were considered essential to reach a good result. In total, 10-11 tons of mercury were identified, 6-7 tons of which were collected. By Swedish EPA estimates, there are about 30 tons of mercury still left in technical products and goods that are either in use or in storage and yet more mercury in households and agriculture.

- Terminal storage of mercury

According to the Swedish strategy, mercury should not be recycled but should be finally disposed of in a safe and environmentally sound way. Using this as a starting-point, the Government has commissioned two enquiries into how such final disposal can be effected. In 2001, the Committee on the terminal storage of mercury proposed that a legal requirement for waste containing mercury to be stored permanently deep in bedrock. Waste owners should cooperate and bear the responsibility for the construction, location, building and management of a deep storage facility. An estimated total of 1,100 – 1,400 tons of waste containing mercury is waiting to be put into terminal deep storage. Several technical and legal issues remain unsolved before a storage facility can become a reality. The Government will now consider the committee's proposals, and decide what legislation is needed. The Government will also ensure that the necessary channels of cooperation are open and will help find a suitable location for a terminal storage facility.

Some experiences that can be drawn from Sweden's efforts to phase out mercury

- A clear target (2010 for mercury) set by the Government and Parliament facilitates the adoption and implementation of individual measures.
- It is difficult for a small country like Sweden to stand alone. Phase-out of mercury in goods and products must be effected on a European level and in the long term even on a global level.
- A key success factor in "purging" the society from mercury is to make people aware about the problem and inspire them with enthusiasm as to the environmental gains that can be made.

- A prerequisite for the terminal storage of mercury is to have broad public acceptance for the selected solution. This experience has been drawn from the nuclear waste disposal field.