Air quality: arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air

2003/0164(COD) - 28/01/2005

COMMISSION'S IMPACT ASSESSMENT

1. PROBLEM IDENTIFICATION :

Mercury and its compounds are highly toxic to humans, ecosystems and wildlife. Mercury is persistent and can change in the environment into methylmercury, the most toxic form. Methylmercury readily passes both the placental barrier and the blood-brain barrier, inhibiting potential mental development even before birth.

For more information regarding the context of this problem, please refer to the complementary summary of the Communication (COM(2005)0020) on a Community Strategy concerning mercury.

1.1-*Risks:* the largest source of mercury exposure for most people in developed countries is inhalation of mercury vapour from dental amalgam. Exposure to methylmercury mostly occurs via diet.

1.2-*Who is affected by this strategy?*Demand for mercury stands at around 3,600 tonnes per year globally (i.e. absorbing supply) and around 300 tonnes in the EU. The main global uses, accounting for over 75%, are artisanal gold mining, batteries and the chlor-alkali industry.

Of these, only the chlor-alkali industry remains a significant user in the EU, and here the mercury cell process is being phased out. The next most significant use in the EU is in dental amalgam, in respect of which Community legislation on waste management applies. Of other major product groups, Community law already covers lighting and other electrical equipment. The main product group not covered by Community law is measuring and control equipment.

The main source of emissions of mercury is the burning of coal, both globally and in the EU. Coal burning in large combustion plants (but not smaller plants or households) is covered by Community legislation, as are some of the other major industrial sources such as the metals, cement and chemical industries. Crematoria are another relatively significant source of emissions. They are not covered by any Community legislation although there is a Recommendation on cremation that applies to parties to the OSPAR Convention.

2. OBJECTIVE:

The ultimate aim of EU action in this field is to reduce mercury levels in the environment and human exposure, especially from methylmercury in fish.

3. POLICY OPTIONS AND IMPACTS:

The Community has already taken much action to address the mercury problem, and in particular to reduce emissions, use and exposure. By looking at the various stages of the mercury cycle, the ExIA considers what aspects of the problem will be addressed by the implementation of the present and already planned Community legislation and policies, and what aspects will remain. On this basis, the ExIA examines specific options for further action in relation to the following issues:

- **Raw mercury supply and trade** – the EU is the largest net exporter of raw mercury, and a continued oversupply and low price are significant drivers for ongoing and potentially new uses.

- **The fate of surplus mercury from the chlor-alkali industry** – this could, if not handled in a safe and sustainable way, be associated with considerable environmental damage in the EU, future Member States and third countries.

- **Measuring equipment** (e.g. thermometers, barometers, blood pressure gauges) – the largest mercury-using product group in the EU not covered by current Community legislation.

- **Coal combustion** – the largest source of mercury emissions in the EU and globally.

- **Cremation** – although this is not an especially large source of emissions in relative terms, it is significant in some countries, and unlike the main industrial emissions it is not subject to any Community legislation.

3.1-*Chlor-alkali industry*

The Commission favours **stopping the export of mercury** from the EU. Other options that would allow continued export indefinitely do not appear acceptable, as they would extend the EU's contribution to the global mercury problem rather than helping to address it. This conclusion also reflects the ExIA's assessment of the scope to reduce global mercury demand. It is evident that the EU could not credibly argue for and support active efforts worldwide to reduce mercury demand on the one hand while intending to remain the main global supplier on the other.

Even without action on export of mercury in general, the **negative environmental impacts** of primary mercury mining and production, as well as their **doubtful economic viability**, support the permanent ending of these particular activities in the EU. Spain has stated that mining and production in Almadén (the main global supplier) have already been stopped temporarily, and does not anticipate that they will restart.

Stopping export would also remove the main market for surplus mercury from the chlor-alkali industry, such that storage or disposal would be necessary. On the basis of the analysis, the Commission favours storage of metallic mercury. This could be pursued via legislation. However, as the industry is a large and well established one, with a relatively small number of players, the possibility of proceeding via an agreement can be explored in the first instance. The industry has already stated a preference for storage over permanent disposal, and has begun to investigate the possibilities in this area. Permanent disposal of stabilised mercury is a long-term option, but, for the moment, the Commission considers that it is too expensive, and has too many technical uncertainties, to be pursued at Community level.

The analysis indicates that the inclusion of metallic mercury under the PIC (Prior Informed Consent) procedure of the Rotterdam Convention would be positive, though not sufficiently effective alone to obviate the need for EU action. However, a PIC listing could still be an advantageous complementary measure, as it would act at the international level.

More broadly, to reduce mercury supply internationally, the Community should **advocate a global phase-out of primary production and encourage other countries to stop surpluses re-entering the market**. This could be pursued under an initiative similar to that of the Montreal Protocol on substances that deplete the ozone layer.

3.2- *Measuring and control equipment*

The Commission considers it would be appropriate to introduce a **marketing restriction** on measuring and control equipment for **consumer use and, with some exemptions, the healthcare sector.** This is because of the relatively high level of mercury use in this sector, which will also lead to significant emissions. Establishing a restriction on measuring and control devices containing mercury at Community level would have a higher effectiveness than leaving such measures to the Member States alone, without entailing higher costs. Therefore this option seems preferable. However, extending the restriction to specialist industrial and scientific applications would need further investigation. The analysis has found that adequate substitutes for such specialist applications are not always available, and the standard of waste management should also be higher, at least as compared to that for consumer products.

3.3- *Coal combustion*

The Commission considers it is not appropriate, at this stage, to propose new Community action in order to target mercury emissions from the combustion of coal. Primarily, coal combustion in large combustion plants is already covered by two major pieces of Community law – the IPPC and LCP Directives.

3.4-*Cremation*

The Commission considers it is not appropriate, at this stage, to pursue Community-level action on cremation. This is because most of the problem with mercury emitted from crematoria assessed in this ExIA is already covered by an OSPAR Recommendation, and by legislation in some of the remaining Member States who are not parties to the OSPAR Convention.

*CONCLUSION :*On the basis of the results of this extended impact assessment, the Commission considers that in the context of the **chlor-alkali industry**, action should be taken **to stop the export of mercury** and that **efforts should be made to reach an agreement with the industry on the storage of metallic mercury**. It also supports the inclusion of metallic mercury under the PIC (Prior Informed Consent) procedure of the Rotterdam Convention **and that there should be a global phase-out of primary production** and encourage other countries to stop surpluses re-entering the market.

The results of the assessment support the introduction of a marketing restriction on measuring and control equipment **for consumer use and, with some exemptions, the healthcare sector**.

For the present, the Commission does not consider it appropriate to take any further action with regard to the coal combustion or cremation sectors.

4. FOLLOW- UP:

Elements of the mercury strategy's implementation will include contributions of the Community, Member States and other EU stakeholders/actors to international discussions and actions concerning mercury; the development or revision of Community legislation, subsequently to be transposed and implemented by the Member States; actions at the level of the Member States or below, where Community action is not considered appropriate; undertaking further studies, assessments and research to fill gaps in knowledge about the mercury problem and its possible solutions.

The Commission is due to prepare a report on mercury (and certain other pollutants) under Article 8 of the 4th Air Quality Daughter Directive by 31 December 2010. This will cover, inter alia, experience of applying the Directive, the results of the most recent scientific research on the effects of mercury exposure on human health and the environment, and technological developments including progress in methods of assessing concentrations in ambient air as well as deposition. The report is also to consider whether there would be merit in taking further action in relation to mercury, taking account of technical feasibility and cost-effectiveness and any significant additional health and environmental protection that this would provide. The review will use data from various sources and cover all media, rather than simply reporting from an air quality perspective.