



European Environmental Bureau comments on the draft final report (4 June 2010) on the Review of the Community Strategy concerning Mercury, carried out by BIO Intelligence Service for the European Commission

16 July 2010

The European Environmental Bureau (EEB) appreciates the opportunity to comment on the draft final report (4 June 2010) on the Review of the Community Strategy concerning Mercury carried out by BIO Intelligence Service for the European Commission. With our comments, EEB would like to underline the importance of a continuously robust EU Mercury policy. We welcome the review carried out from the consultants and call upon the European Commission, as a follow up, to recommend the adoption of a revised strategy with several important new actions as soon as possible.

Mercury is a global pollutant that travels long distances. Its most toxic form – methylmercury - accumulates in large predatory fish and is taken up in our bodies through eating fish, with the worst impacts on babies *in utero* and small children. Mercury is also used and traded indiscriminately around the globe, and results in pollution far from the source.

The EU's 2005 Strategy Concerning Mercury aimed to reduce human exposure to mercury by reducing emissions, supply and demand of mercury in the EU. Many of the Strategy actions have been embraced and are in the process of being implemented (e.g. *export ban by 2011 and safe storage of metallic mercury, market restrictions of certain mercury-containing measuring devices*). These initiatives, among others, have and will have great impact not only within the EU but also globally. Presently, the EU is currently still the biggest mercury exporter - mercury is exported to developing countries with very little or non-existent control measures; and mercury is often improperly managed, eventually ending up in the environment and contaminating food resources and populations.

A strong revised EU mercury strategy is imperative not only for the protection of EU citizens, but it is also fundamental to ensure that the leadership role of EU is maintained at the global level (UNEP) level towards developing a vigorous mercury treaty. The EU should lead the negotiations with its own examples, and not fall behind just following global decisions.

Since safe mercury-free alternatives are available, the EEB would expect the new strategy to include, measures phasing out the use of mercury at least in the following areas:

- **chlor-alkali industry,**
- **dental care sector**
- **button cell batteries,** and
- **polyurethane elastomers and porosimetry/pycnometry**

Action is seriously needed regarding reducing **emissions from combustion of fuels**, in particular coal combustion plants with a thermal capacity above 20MW, since these are the biggest point sources of mercury emissions in the air – in Europe and globally.

Finally an updated mercury strategy has to ensure that regulation 1102/2008 is implemented and measures are taken to **extend the mercury export ban to medical purposes** and to **ban exports of products containing mercury which are already prohibited for sale on the EU market.**

Considering that the objective of the EU mercury strategy is to '*reduce mercury levels in the environment and human exposure , especially from methylmercury in fish*', we also believe that **an updated EU-wide risk communication and fish testing program for methylmercury in fish**, would be very useful to include in the new EU mercury strategy.

Per the EC rules, to ensure that legislative measures can be proposed and eventually implemented by the new EU mercury strategy, EEB proposes that the consultants should further assess relevant elements as a next step in section 5 of the report.

Given the limited time available with respect to the work of the consultants, **the assessment should focus at this stage at exploring further policy options** on:

- restricting the use of mercury from the **chlor-alkali sector**, and
- restricting the marketing of mercury-containing **button cell batteries**

For these two areas, the screening criteria discussed in chapter 5 are met as explained under the comments on chapter 5 further down.

Furthermore, we would appreciate a legal/policy analysis and clarification related to mercury in switches, relays and thermostats. We would like to ensure that a mercury ban for these devices will be in place soon. Clarification is needed on what is meant by 'industrial or professional use' under definitions of the RoHS recast proposal.

Further comments on the Draft Final Report as well as our own recommendations for actions to be considered for a new enhanced EU Mercury strategy can be found below.

Thank you in advance for considering our comments and recommendations.

For more information please contact:

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EEB Comments on the BIO Draft Final Report

Comments are provided under each of the relevant sections/chapters of the BIO report. Furthermore we would appreciate that our proposed actions under section 2 below are considered further to the ones proposed by BIO.

Executive summary

Please see below our comments relevant to the different chapters which refer also to the executive summary.

On page 12, under 'further assessment of selected actions' we believe that it would be beneficial to the reader to note that a lot of information relevant to many other measures proposed is already covered and discussed in the COWI/Concorde 2008 report; some examples can be provided. The proposal from the consultant could be that the EC could then use this and other available information and propose short term measures and actions for the relevant areas.

Chapter 2 - Review of the current policy framework

To our view it would be interesting to include in the report information from other Member States such as France, Czech Republic, Poland and/or other new MS, since these countries have relevant regulations to mercury and/or would be very relevant to the debate because of potential large use and emissions of mercury.

Similarly, drawing experiences from other countries worldwide who have already advanced in some mercury relevant areas would be useful information to the reader. We would further suggest looking into relevant legislation and experiences from the Philippines, Argentina (and Brazil) and South Africa - as representative of island nations, Latin America and African regions respectively. Through our contacts and network we could assist BIO to collect such information.

Under references to the US legislation, we believe it would be worth mentioning the draft bill which is currently under discussion setting a sunset date for mercury-cell chlor-alkali plants¹.

In addition , references to WHO's recommendations should now be updated after their announcements at the first Intergovernmental Negotiating Committee - recommending to phase-out of mercury sphygmomanometers and the use of mercury-free thermometers in health-care and domestic settings, supporting a "phasing down" of dental amalgam, recommending that production and use of mercury containing cosmetics needs to be stopped².

Chapter 3 - Assessment of the strategy's implementation and possible additional measures

In general terms the EEB agrees with the possible additional measures proposed as a follow up of the 2005 EU mercury strategy actions. Please see below our summary assessment.

¹ <http://www.govtrack.us/congress/bill.xpd?bill=h111-2190> and <http://thomas.loc.gov/cgi-bin/query/z?c110:H.R.5580>:

² Presentation [Mercury and the Health Care Sector](http://www.unep.org/hazardoussubstances/Mercury/Negotiations/INC1/Technicalbriefingpresentations/tabid/4118/anguage/en-US/Default.aspx), by Carolyn Vickers, World Health Organization (WHO) <http://www.unep.org/hazardoussubstances/Mercury/Negotiations/INC1/Technicalbriefingpresentations/tabid/4118/anguage/en-US/Default.aspx>

Action number	Related to	Assessment
1	Emissions from IPPC industries including coal combustion	☹
2	IPPC BREFs including chlor-alkali one	☺
3	Small combustion plants	☺
4	Dental amalgam waste	☹
5	Mercury export ban	☺
6	Use of mercury in dental amalgam	☺
7	Measuring and control devices	☺
8	Study of remaining products and applications, later under REACH	☺
9	Storage of mercury from chlor-alkali industry	☺
10	Study fate of products circulating in society	☺
11	EFSA will investigate dietary intakes of different types of fish and seafood among vulnerable subpopulations	☺
12	Information concerning mercury in food as new data	☺
13	Mercury to be addressed in 7th RTD FP or other mechanisms	☺
14	Pursue input to international fora and activities	☺
15	Establishing a specific funding scheme for research and pilot projects to reduce mercury emissions from coal combustion	☺
16	Promote initiative to make mercury subject to Prior Informed Consent of the Rotterdam Convention	☺
17	Continue supporting work of the Heavy Metals protocol under UNECE LRTAP	☺
18	Support the UNEP Global Mercury Programme	☺
19	Support global efforts contributing to reduced use of mercury in the gold mining sector, e.g. the UNDP/GEF/UNIDO Global Mercury Project	☹
20	Reduce mercury supply internationally	☺

As it can be seen in the above summary and in relation to the assessment carried out by BIO we would see the progress in actions 2 and 3 as moderate rather than good, in action 4 low rather than moderate, and in actions 11 and 12 moderate rather than good progress, for the reasons discussed below. Our own detailed comments and those on the BIO assessment on the EU strategy actions can be found in the EEB observations and partial proposals for a new EU Mercury strategy - section 1.

In this section, and with respect to the possible additional measures proposed or not, we would like to bring to your attention the following:

Define a legally-binding sunset date for existing MCCA plants in the EU.

As explained in section 1.1, 2.2.1 and 2.4.1 below, one of the highest priorities for EU strategy should be a legally binding phase-out date for mercury cell chlor-alkali plants. In its comments on the BIO draft final report, Eurochlor expressed its preference for continued reliance on its voluntary agreement. However, a legally binding sunset date should be set for the following reasons:

- Eurochlor has never addressed why a binding obligation to close/convert by the same date they propose would pose any additional economic disadvantage for them. At the same time, a legal obligation provides more certainty for industry planning purposes, and for EU mercury storage planning purposes. It also enables EU to exercise leadership on this issue at the global level.

- Eurochlor claims regarding economic obstacle to conversion appear unpersuasive given the ongoing expansion of chlorine capacity in Europe - more membrane capacity is always created than the amount of mercury cell capacity closed down³.
- In addition, in relation to the recently submitted table on Western European Mercury Cell Based Chlorine Capacity Change 1998-2005⁴ - it is not clear which MCCAPs are included in general and in the red stars and if new Member States and their MCCAPs are included in the 1998 and 2002 industry-funded studies of when MCCAPs might close down. Also these old studies may ignore many other MCCAPs in current EU countries, which may or may not be closing/converting at the same rate. Since many MCCAPs in the newer Member States have even higher emissions and unexplained losses than those in the older Member States, we consider that the 1998 and 2002 industry-funded studies may be of little value currently as they do not include the EU as a whole.
- In addition, Eurochlor suggests that closure/conversion progress is going as planned using the voluntary method. However, if we look at the way the OSPAR recommendation to phase out the use of mercury in MCCAPs by 2010, was implemented, we can see that still around 24 MCCAP plants operate in EU countries under OSPAR jurisdictions, notwithstanding the OSPAR guideline. This shows that voluntary and recommendation type approaches are not sufficient.
- Finally, as a policy matter, the ultimate choice of how long the use of mercury can continue in this antiquated process should be a matter of public policy, not left up to individual companies. The EU has recognized this for mercury products by moving toward phase outs where alternatives are available. These decisions were not left for individual product manufacturers to decide. Why should this sector be different, particularly since they account for so much of the mercury in circulation within the EU?

Furthermore some elements and outcomes on the mercury emissions from MCCAPs, from previous studies such as ESPREME and the 'lost' mercury reported as 'difference to balance' should also be reflected in the main analysis and not only in the annex.

Atmospheric emissions of mercury

Emissions from **combustion of fuels, and in particular from coal combustion plants** should be minimised, since these are the biggest point sources of mercury emissions in the air – in Europe and globally.

With the recently adopted Industrial Emissions Directive (IED) - the role of the BREFs has now been strengthened, permit writers have to ensure that the permit conditions are set according to the BAT conclusions of the BREF. Emission Limit Values should not exceed the Best Available Techniques Associated Emission Levels (BATAEL), as these are specified in the BREFs, and the respective industries have to comply within 4 years after adoption of the BAT conclusions. In the meantime, permit conditions should in principle be based on BAT as set in the BREF. Nevertheless, unfortunately possibilities for derogations are still possible based on local conditions and many issues may remain unclear, such as the status of the BREFs pending adoption through the formal comitology procedure.

To that end the legally binding phase out should still be taken by the EC, with respect to the chlor-alkali industry (as explained in the relevant sections of this document). As a minimum, strict enforcement of the IED must be ensured by the EC. It is crucial that ambitious mercury

³ Euro Chlor comments on BIOIS report_July 2010.doc, [Download](http://mercury.biois.com/files-3), under <http://mercury.biois.com/files-3>

⁴ Euro Chlor comments on BIOIS report_July 2010.doc, [Download](http://mercury.biois.com/files-3), under <http://mercury.biois.com/files-3>

emission prevention / reduction requirements as well as ambitious Best Available Techniques Associated Emission Levels (BATAEL) are set within the relevant BREFS (such as coal combustion, cement, non-ferrous metals, steel) and most importantly in the BREF on Large combustion plants, the revision of which is to start soon. Germany for example has already an ELV on mercury for large combustion plants (LCP). To our information, the German EPA considers to lower by 10 fold the daily ELV for Hg applicable to all LCPs (existing and new one) in Germany from 30 µg/m³ to 3 µg/m³).

In addition the Commission should provide for minimum EU wide requirements (European Safety Net) through the revision of the IED aiming to prevent emissions of mercury for these sectors.

The Commission should check that the issue of dental amalgam waste is taken into account in the development of programmes of measures according to the Water Framework directive.

While we are not against this proposed measure per se, it has to be underlined that many Member states appear to currently be lax in addressing the collection and disposal of amalgam waste at dental practices or are even in breach of the Waste Framework and Hazardous Waste directives on the basis of which dental amalgam had to be treated as a hazardous waste, be collected separately and disposed safely. Therefore EC should immediately ask that Member States comply with the waste regulations and provide, in the short term, a timetable of their plans to collect separately and safely dispose of dental amalgam waste. Those failing to provide this timetable should be identified as priority for administrative compliance follow-up actions by Commission staff.

We would appreciate that these and more detailed comments in sections 1.1, 1.3, 2.2.2, and 2.51 are considered, when finalising assessment of Action 4 - pages 60-63 of the report.

International actions

Finally we would urge the EC and individual Member States to contribute to paragraph 34 and 35 of UNEP GC 25/5 and get actively involved in the UNEP Global Mercury Partnership. These should be seen as an inseparable piece of the development of the mercury treaty, since on the ground action is expected to facilitate and further enhance decisions on measures in the different areas.

Chapter 4 - Possible additional actions

Except as discussed below, the EEB generally agrees with the possible additional actions proposed by BIO since these are consistent with our suggestions provided in the 3 June EEB initial comments, as input to the study and which can be found under *EEB and partial proposals for a new EU Mercury strategy below*.

We nevertheless have some specific comments we would further like to discuss here:

Reduce supply

On page 10 and 101-103, with respect to the proposed action to ban or restrict import of elemental mercury and compounds - we underline that an exemption/consideration should be added here allowing for the import of mercury and compounds for the purpose of sequestration and storage. Global coordination to remove the mercury in circulation from global commerce will require substantial international cooperation and coordination. It is premature to preclude any potential roles and responsibilities for the EU and Member States

in this regard. Such action could lead to the unnecessary construction of mercury storage facilities in less developed areas of the world, where the political stability and technical capabilities to safely manage this mercury may be lacking. We note the USA has not prohibited the import of mercury for storage or sequestration at private facilities – such restrictions apply only to government owned facilities where taxpayer financing is involved. See also relevant sections 2.1.1 and 2.3.3 below. This above comment is also relevant to the analysis of selected measures (Chapter 5), and we would kindly request that the text is adapted respectively.

Reduce demand for mercury in products and processes

Phase out the use of dental amalgam, possibly with identified exemptions.(page 104)

As mentioned during the consultation meeting we would like to underline that a phase out of mercury use in dental amalgam is possible in Europe; we do support the phasing-down mercury use in the sector at global scale, as also supported by WHO, but the EU is much more advanced in terms of alternatives available and services provided and could go further.

Consider further restrictions to the mercury content of light bulbs

Although we do support this measure and have contributed vastly to the work already done to reduce mercury content in lamps, we would recommend that EU should take one more step and restrict completely the use of mercury from certain applications such as exit signs, traffic lights, computer and flat screen backlights etc. More information can be found in our earlier position papers specifically on this issue⁵.

Ban the marketing of mercury-containing button cells.

Action towards this measure should be taken with priority. Mercury-free button cell technology has advanced and expected environmental benefits are high considering that banning mercury button-cell batteries from the EU market, will give a strong signal to other countries such as China which are major exporter of such products, with global repercussions.

Banning the use of mercury containing switches in all applications except for special purpose motions sensors and mercury wetted relays. (Pages 10 and 111)

On this particular issue we would appreciate a legal/policy analysis and clarification related to mercury in switches, relays and thermostats. We do agree with the proposed action from the consultants and would indeed like to ensure that a mercury ban for these devices will be in place soon.

To our understanding, until now if these products were components of EEE products under categories 1-7 and 10 of the WEEE directive 2002/96, then these (components) should be mercury-free since they were part of a product which as a whole had to be mercury-free, following the implementation of the RoHS directive (2002/95).

As individual products (switches, relays and thermostats), these fall under category 9- *Monitoring and control instruments (including smoke detector, heating regulators, thermostats, measuring, weighing or adjusting appliances for household or as laboratory equipment, industrial monitoring and control instruments)*. On the basis of the EC recast proposal

⁵ http://www.zeromercury.org/EU_developments/090831NGOs-RoHS-Review-of-AnnexHg-in-lamps-Consolidated.pdf

(COM(2008) 809 final, 3.12.2008, 2008/0240 (COD))⁶ category 9 and category 8 (Medical devices) are to be included in the scope of the directive. And on the basis of article 4 (3), (4) and (5) of the recast EC proposal currently being discussed in co-decision, the substance ban [4.3] *shall apply to medical devices and monitoring and control instruments which are placed on the market from 1st January 2014, to in vitro medical devices which are placed on the market from 1st January 2016 and to industrial monitoring and control instruments which are placed on the market from 1st January 2017.*

The substance ban [4.4] *shall not apply to spare parts for the repair or to the reuse of the following:*

(a) EEE placed on the market before 1 July 2006.

(b) Medical devices placed on the market before 1st January 2014.

(c) In vitro diagnostic medical devices placed on the market before 1st January 2016.

(d) Monitoring and control instruments placed on the market before 1st January 2014.

(e) Industrial monitoring and control instruments placed on the market before 1st January 2017.

(f) EEE which benefited from an exemption and was placed on the market before that exemption expired.

The substance ban [4.5] *shall not apply to active implantable medical devices. By 2020 the Commission shall review the exclusion of active implantable medical devices with a view to propose inclusion.*

However, in the definitions, article 3 states(p) "*industrial monitoring and control instruments*" mean *monitoring and control instruments designed for exclusively industrial or professional use*. It further appears that this definition is still debated within the EU institutions especially in relation to the term 'professional use'.

In addition, the following exemptions apply:

8.1d Mercury in reference electrodes: low chloride mercury chloride, mercury sulphate and mercury oxide

16. Mercury in very high accuracy capacitance and loss measurement bridges and in high frequency RF switches and relays in monitoring and control instruments not exceeding 20 mg of mercury per switch or relay

Could you please discuss and/or confirm our comments above and clarify what is meant by 'industrial or professional use' in the RoHS recast definitions text, and which products would be considered under that, in case this text was to be adopted?

Relevant clarification would be useful to be added in the relevant sections in the report.

Reduce International Trade

In this section we would just further like to underline that measures and respective decisions should be taken swiftly since the environmental benefits and global implications are very important, with respect to;

⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0809:FIN:EN:PDF>

[http://www.europarl.europa.eu/registre/docs_autres_institutions/commission_europeenne/sec/2008/2930/COM_SE C\(2008\)2930_EN.pdf](http://www.europarl.europa.eu/registre/docs_autres_institutions/commission_europeenne/sec/2008/2930/COM_SE C(2008)2930_EN.pdf)

- expanding the export ban of elemental mercury to medical purposes to ensure that no elemental mercury is exported for the use in dentistry. This has a twofold benefit - dental assistants and dentists are protected from direct contact with liquid mercury considering that amalgam capsules will be used instead, in the cases where mercury amalgam is still used. At the same time the illegal use of elemental mercury that was 'officially declared' for dental use, would not be available for use in the artisanal small scale goldmining sector.
- ban the export of mercury-added products which are already prohibited in the EU market. The EU must avoid double standards. Mercury-containing products which are banned in the EU should not be exported to countries where they may not yet be regulated, and where their disposal is often poorly handled, contributing to mercury spills, release at disposal, and hence both direct health risks and environmental contamination

In addition, and as a follow up to the consultation meeting held on 18 June 2010, we would also like to underline that it would be important for the EU to consider and eventually take action on banning the export of technologies for producing mercury products or which use mercury in the production process, where such products and processes are already prohibited in the EU.

Reduce or eliminate mercury emissions

On page 11 and 117-118, Mercury emissions from crematoria should be further investigated, including relevant technologies or other effective approaches, for eventual control at EU level. Emission limit values for this source should be proposed by the European Commission as soon as possible. Crematoria should be included in the scope of IED (Annex I) so that BAT in relation to mercury emissions prevention/control get applied. New crematoria should be subject to more stringent requirements. See also further proposals in section 2.4.3 below.

Chapter 5 - Further assessment of Selected actions

EEB welcomes the fact that export ban of products and import ban of mercury/compounds have been chosen for further assessment.

Options relating to import restrictions

With respect to the analysis of options referring to the import ban - an exemption for sequestration and storage should be considered. Global coordination to remove the mercury in circulation from global commerce will require substantial international cooperation and coordination. It is premature to preclude any potential roles and responsibilities for the EU and Member States in this regard.

To that end we would appreciate this consideration to be included in the BIO study and the proposed action to be modified accordingly.

Options relating to further mercury export restrictions

With respect to the export of mercury-added products, it has to be underlined that waste disposal facilities in developing countries are very different from what we are familiar with here in Europe. Even if those are characterised as 'hazardous waste', the conditions and requirements to accept waste are not the same. In many cases special hazardous waste facilities/landfills may not even exist. As a result mercury-containing products which become waste may become the cause for wider exposure increasing the risk to human health and the

environment. We would appreciate if this consideration is included in the relevant section in page 157.

Proposal for additional issues to be further assessed

Furthermore, as explained earlier and at the consultation meeting we have concerns on the screening process especially concerning some sectors which we (and other Member States) consider as a priority - namely the chlor-alkali and button-cell batteries sectors.

Given the limited time available with respect to the work of the consultants, **the assessment should focus at this stage at exploring further policy options** on:

- restricting the use of mercury from the **chlor-alkali sector**, and
- restricting the marketing of mercury-containing **button cell batteries**

For these two areas, the screening criteria discussed in chapter 5 are met.

For the chlor-alkali :

- there is no special legislation or policy focusing on the mercury use in the chlorine industry, and as discussed repeatedly the IPPC directive has not been effective in regulating the sector.
- expected environmental benefits are high since the emissions from the sector appear to be much higher than reported.
- vast information is already available for the sector but it has not been analysed in an 'impact assessment' way,
- it has been proven that Member States have not been able to control the sector – on the contrary of what is mentioned in page 136 of the report; as it is also mentioned on page 51, EU legislation does not specify mercury emission limit values (ELVs) for the sector, and wherever ELVs are set by the operating permits, these do not reflect the best practice in most cases. Overall releases of mercury are regulated in a different way among EU MS and plants, even within the same country. The absence of clear EU guidelines, and standard permits makes implementation, enforcement and comparison at EU level virtually impossible, does not contribute to a level playing field nor to a consistent and reliable protection of the environment and public health across the EU. Therefore the subsidiarity principle cannot be evoked for this sector.
- furthermore, in this area the EU is lagging behind in the global context and should take drastic measures to catch up.

For the button-cell batteries:

- This assessment could feed into the work in preparation for the review of the EU Batteries directive, and accelerate the process of banning mercury in button cell batteries
- Expected environmental benefits are high considering that banning mercury button-cell batteries from the EU market, will give a strong signal to other countries such as China which are major exporter of such products, with global repercussions.
- Information on batteries is already available from different studies but has not been 'impact assessed' until now.

Annex 5 - Screening Assessment of possible additional policy measures and actions

With respect to the table presented in Annex 5 related to the screening assessment we have the following observations:

- It would be preferable that the hatched cells in the table are presented in a different way (e.g.hatching/colour) for the three reasons identified, (are already addressed by other ongoing policy review processes, have no quantifiable associated impacts, an

- impact assessment has already been carried out for these actions whose conclusions have been presented in the present report) and mainly in relevance to the last one - since the way of reading this could be very different.
- We don't share the analysis as far as mercury use in chlor-alkali is concerned, as explained above. We would appreciate that relevant boxes of the table are changed accordingly. There is no uncertainty on the added value of an EU action considering the level of emissions from the sector and the impossibility to ensure consistent and reliable protection to EU citizens and the environment. The comment further ignores the 'lost'/'difference to balance' mercury although this is mentioned earlier in the report.
 - Similarly, to the above, the global implications of banning mercury containing button cells in Europe has not been considered.

Editorial and other comments

- p. 10 and 109: under Reduce demand for mercury in products and processes- second bullet point: the exemptions which should be considered are for validation and NOT for calibration purposes, as per the SCENIHR report. There is a difference on the two terms with quantity implications on the sphygmomanometers and eventually mercury used. There are only a few validation centres in Europe and around the world whereas quite a few hospitals or other centres which could be doing calibration of the instruments.
- p. 11, 118, and 240: the 's' is missing from OSPAR.
- p. 59: Please include in the description of the AEAT study the tonnes of mercury estimated as emitted per year with the caveat of whatever assumptions were made. It would be important for the reader to have a quick indication on the amount of mercury emitted from small scale coal combustion plants.
- p.70: On Action 9 - we would appreciate if more details on the MERSADE project are included in the report- such as what have been key results/deliverables, how do these contribute to the EU policy and references of where relevant reports can be found.
- p.73: On Action 13, and similarly to the comment above it would be interesting to discuss briefly in the report which results/deliverables of the research projects listed are relevant and contribute to the EU policy discussions on mercury.
- We would further propose to BIO to include a summary table including *all* potential additional measures (stemming from the assessment of the 2005 strategy - ch.3) and potential additional actions (new actions - ch.4).

EEB observations and partial proposals for a new EU Mercury strategy

0. Introduction

Mercury has been restricted and regulated in a number of existing directives in the European Union since the 70s. The 2005 EU Mercury Strategy, with the aim to reduce mercury levels in the environment and human exposure, especially from methylmercury in fish, gave a further boost to mercury related policies and measures at EU level. The strategy proposed 20 actions with the objective to reduce mercury emissions, cut supply and demand of mercury in society, protect against exposure, improve understanding and solutions of the mercury problem and support and promote international action on mercury.

While some of the proposed actions have now been implemented, some mercury uses still continue, releasing mercury to the environment and being a potential health and environmental risk in the European Union and globally. Furthermore, the global developments and the role of the EU in upcoming mercury treaty negotiations, make it imperative that actions at EU level are enhanced to ensure the leadership of the EU at global level.

As a result, there is a great need for a new enhanced mercury strategy at EU level. The European Union is still a key user of mercury in a variety of applications, a major exporter and releases annually more than 200 tonnes of mercury. This results in significant risks to human health, ecosystems and wildlife and the contamination of global food supplies with mercury.

Table of Contents

EEB observations and partial proposals for a new EU Mercury strategy.....	12
0. Introduction.....	12
1. Short assessment of the 20 actions of the 2005 EU Mercury strategy.....	13
1.1. REDUCING EMISSIONS	14
Action 1.	14
Action 2.	17
Action 3.	18
Action 4.	18
1.2. REDUCING SUPPLY	19
Action 5	19
1.3. REDUCING DEMAND.....	20
Action 6.	20
Action 7.	22
Action 8.	22
Action 9.	23
Action 10.	24
Action 11.	24
Action 12.	25
Action 13.	26
1.4 ACTIONS AT INTERNATIONAL LEVEL.....	26
2. Partial proposals for new and follow up actions for the new EU Mercury Strategy ...	28
Summary of EEB proposed actions.....	28
2.1. Reduce the supply of mercury and enhance the capacity for its environmentally sound storage;	32
2.1.1. <i>Reduce Supply</i>	32
2.1.2. <i>Environmentally sound storage for mercury</i>	33
2.2. Reduce the demand for mercury in products and processes;	34
2.2.1. <i>Mercury use in the chlorine industry</i>	34
2.2.2. <i>Mercury use in dental amalgam</i>	36

2.2.3.	<i>Mercury use in Porosimetry - Pycnometry</i>	39
2.2.4	<i>Mercury use in Polyurethanes</i>	39
2.2.5	<i>Mercury use in batteries</i>	40
2.2.6	<i>Mercury use in light sources</i>	41
2.2.7	<i>Mercury use in measuring and control devices in healthcare and professional uses</i> 41	
2.2.8	<i>Mercury use in lighthouses</i>	42
2.2.8	<i>Mercury in vaccines</i>	43
2.3.	Reduce international trade in mercury	43
2.3.1.	<i>The export ban should include mercury compounds</i>	44
2.3.2	<i>Mercury-containing products, which are subject to EU use and marketing restrictions should also be covered by the ban.</i>	45
2.3.3	<i>Restricting imports of mercury and mercury compounds</i>	45
2.4.	Reduce atmospheric emissions of mercury;	46
2.4.1	<i>Atmospheric emissions from industrial sectors covered by the IPPC directive</i>	46
2.4.2	<i>Atmospheric emissions from small combustion plants</i>	49
2.4.3.	<i>Atmospheric Emissions from crematoria</i>	49
2.5.	Address mercury-containing waste and remediation of contaminated sites;.....	50
2.5.1	<i>Mercury containing-waste</i>	50
2.5.2	<i>Remediation of mercury-contaminated sites</i>	52
2.6.	Increase knowledge through awareness-raising and scientific information exchange; .	
	52
2.7.	Reduce emissions to water and soil.....	53
2.7.1	<i>Emissions from sewage sludge</i>	53
2.8.	Protect against exposure	54

1. Short assessment of the 20 actions of the 2005 EU Mercury strategy⁷

Our comments below, follow the structure of the EU Mercury strategy.

Summary of assessment of actions 1-20

Action number	Related to	Assessment
1	Emissions from IPPC industries including coal combustion	☹
2	IPPC BREFs including chlor-alkali one	☺
3	Small combustion plants	☹
4	Dental amalgam waste	☹
5	Mercury export ban	☺
6	Use of mercury in dental amalgam	☹
7	Measuring and control devices	☺
8	Study of remaining products and applications, later under REACH	☺
9	Storage of mercury from chlor-alkali industry	☺
10	Study fate of products circulating in society	☺
11	EFSA will investigate dietary intakes of different types of fish and seafood among vulnerable subpopulations	☺
12	Information concerning mercury in food as new data	☹
13	Mercury to be addressed in 7th RTD FP or other mechanisms	☺
14	Pursue input to international fora and activities	☹
15	Establishing a specific funding scheme for research and pilot projects to reduce mercury emissions from coal combustion	☺
16	Promote initiative to make mercury subject to Prior Informed Consent of the Rotterdam Convention	☹

⁷ revised with reference to EEB comments of 3 June 2010

17	Continue supporting work of the Heavy Metals protocol under UNECE LRTAP	☺
18	Support the UNEP Global Mercury Programme	☺
19	Support global efforts contributing to reduced use of mercury in the gold mining sector, e.g. the UNDP/GEF/UNIDO Global Mercury Project	☹
20	Reduce mercury supply internationally	☺

As it can be seen in the above summary and in relation to the assessment carried out by BIO we would rather see the progress in actions 2 and 3 as moderate rather than good, in action 4 low rather than moderate, and in actions 11 and 12 moderate rather than good progress, for the reasons discussed below.

1.1. REDUCING EMISSIONS

Action 1.

The Commission will assess the effects of applying IPPC on mercury emissions, and consider if further action like Community emission limit values is needed, as data under the IPPC and EPER reporting requirements are submitted, and in a broader strategy review by the end of 2010. This will include review of the co-benefit effect of controls to be implemented by 1 January 2008 under Directive 2001/80/EC to reduce sulphur dioxide emissions from large combustion plants.

Background

It is known that mercury is found naturally in coal. As a result, the highest emissions to air in Europe and globally currently come from coal combusting power plant industries. Mercury is also emitted by the use of mercury for the manufacturing of chlorine, during production/cleaning (smelting/mining) of other metals and when mercury-containing products are incinerated.

This Integrated Pollution Prevention and Control Council Directive 96/61/EC (IPPC) has been in place since 1996. Several measures have been implemented in most of the Member States since then. The directive focuses on control and prevention of pollutants like mercury to water, air and land from industrial activities. The Directive requires that all facilities and industries falling under the scope of the Directive (such as energy, mineral and steel, chemical, paper industries and tanneries) should operate subject to permit conditions that set up performance standards according to best available techniques (BAT), with the final deadline for updating all permits by 30 October 2007.

The BAT concept means that industries should opt for cleaner and more efficient production measures and technologies as set out in the BAT reference documents (BREFs). Respective permits should be issued by the local authorities. The specific permit conditions should be based on the Best Available Techniques mentioned in the BREF, but according to current legal status these documents are used as reference only. When setting the technical and performance benchmark of the installation, the permit writer should also take into account its technical characteristics, its geographical location and the local environmental conditions. It is important to note, however, that the IPPC directive does not contain emission limit values (ELVs) for any pollutant; it is up to the local authorities who grants the permits to require (or not) companies to only emit in line with the BAT associated emission levels (BAT AEL) and to comply with relevant environmental quality standards..

Best Available Techniques for each industry sector covered under IPPC are described and analysed in the respective BAT Reference Documents (BREF)⁸ which have been developed at the European level. These also include BAT achievable emission levels for different pollutants relevant to the respective industrial sector. Therefore, the main industries that are using/emitting mercury and fall under IPPC are – the energy producing sector (large combustion plants), the chlor-alkali industry, waste incinerators, cement production and non-ferrous metals industries.

Further to the IPPC, we need to consider that other relevant pieces of legislation currently apply in the EU: the Large Combustion Plant directive 2001/80/EC, which includes emission limit values for sulphur dioxide, NO_x, and dust or particulate matter (PM). It is known that by regulating and reducing SO₂, NO_x, PM, mercury emissions can also be reduced (co-benefit effect). The Waste Incineration directive (2000/76/EC) also includes emission limit values for mercury, also including for co-incineration (cement plants).

For the chlorine industry, the IPPC Directive and broader supporting legislation such as the Water Framework Directive (2000/60/EC) are the only 'hard' pieces of EU law applicable to mercury releases. Despite the (mercury-free) membrane process being regarded as BAT for the chlorine industry, competent authorities still allow the mercury cell to continue operating according to current permits.

The BAT Reference document (BREF) does not clearly prohibit mercury cell chlor-alkali plants from operating. For their remaining-life, mercury-cell plants are not required to meet straightforward best performing associated emission levels for mercury releases. However the BREF document suggests that mercury cell plants dating back before 2001 could achieve mercury emission levels in the range of 0,2-0,5 g Hg/tonne of chlorine capacity as a yearly average.

<i>Short Assessment of Action 1</i>	⊗
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New data on mercury emissions have been entered in the European Pollution Release and Transfer Register (E-PRTR). Nevertheless, no assessment has been carried out with respect to the effects of applying IPPC on mercury emissions. In the two IPPC implementation reports issued in 2007 (for period 2003-2005) and in 2010 (for period 2006-2008), little information is contained and relevant to mercury. The 2010 report assesses the directive on the basis of installation-specific case studies, which for this report were chosen from six industry sectors - printed circuit board manufacture, coal and lignite-fire large combustion plants; iron and steel production; nitric acid manufacture; fertiliser manufacture and mineral oil and gas refineries.

There is no particular focus on mercury in this report and not all industrial sectors chosen are relevant for mercury. With reference to the coal fired power plants, it is evident that the Large Combustion Plant (LCP) directive has been the main driver for defining emission limit values for SO₂, NO_x. No BAT AEL is indicated in the current BREF on LCPs for mercury. In the case studies included in the report, for most permits reviewed, emission limit values (ELVs) in the permits are higher than the BAT-AELs in the BREF. Furthermore, most installations from the ones reviewed did not even have mercury ELVs specified in their permits. Overall it is shown that the BREFs are not taken seriously into consideration from the permit granters - local authorities, even if consulted.

Therefore no specific and analytical assessment has been carried out to assess mercury emissions from industries under the IPPC.

⁸ <http://eippcb.jrc.ec.europa.eu/reference/>

Furthermore, no review of the co-benefit effect from the implementation of the LCP directive has taken place either. Currently the IPPC directive is under review, but no further measures concerning mercury were proposed by the European Commission.

In 2008 the European Environmental Bureau (EEB), carried out a specific review assessing the implementation of the IPPC directive on the chlor-alkali sector with respect to mercury (Hg), based on environmental NGOs' (ENGOs) involvement in and observation of the implementation process.⁹ The report is based on the responses to a comprehensive questionnaire from eight countries (Belgium, Czech Republic, France, Germany, Greece, Italy, Spain and the United Kingdom), where the majority of mercury-cell chlor-alkali plants in operation in Europe were located (36 out of 44 at the time), representing 86,7% of the total mercury-cell chlorine production capacity in Europe.

Based on the outcome of the EEB survey, a number of important conclusions can be drawn:

- No local authorities have actually denied a permit to a MCCAP on the basis that the mercury-cell technique is not BAT;
- The BREF is not considered as a legally binding document which authorities have to seriously consider in the permitting process. Furthermore the BREF for chlor-alkali plants does not contain any clear BAT type indications for mercury emission prevention which need to be met, therefore it does not provide any specific benchmark or direction for local authorities;
- There is no broad and consistent level of protection of EU citizens in terms of mercury releases from MCCAPs;
- The specific characteristics of mercury – being persistent, bio-accumulative, biomagnifiable and transported long distances as a global pollutant – are not adequately taken into account, overlooking the potential negative effect that can be created at European and global level, and the fact that this industry is adding mercury to the world environment from a process for which mercury-free alternatives exist since before the 1980s;
- The aim of the EU mercury strategy, to ensure that we can eventually reduce mercury levels in fish to the point where they are safe for all to eat, is not respected since the emissions from this sector are not regulated in reality;
- No standard measuring methods exist for all plants, and those that are available are not fully used by the different operators;
- Emissions are not being accurately and fully reported, and moreover many operators of MCCAPs don't know what their total real mercury releases are;
- Air emissions from most sites are likely underreported on the basis of various research reports;
- The missing – unaccounted or – mercury releases have not been questioned by most regulators who seem to be unaware of the significance of these losses;
- It is evident that monitoring of mercury emissions is not consistent across the EU, and emission reports rely entirely on the operators' irregular measurements as well as on the authorities' documentation controls or lack thereof, which also differ drastically;
- The EU and most Member State authorities, although they are aware of the wider environmental and economic benefits of conversion, as well as the positive financial situation of the chlorine industry, have avoided setting a legally binding phase-out date for MCCAPs;
- The flexibility that was designed into the IPPC process is being seriously abused by the chlor-alkali industry in order to keep old and polluting mercury-cell plants operating for as long as they are profitable;
- No standard permit for chlor-alkali plants at EU level exists, making harmonisation, implementation and enforcement at EU level difficult to ensure;

⁹ http://www.zeromercury.org/EU_developments/081218EEB_Report_European_MCCAPsDRAFTfinal.pdf

- Permit requirements are often not ambitious enough to drive industry to better performance, rather encouraging business as usual, confirming the status quo;
- The diverse and inconsistent regulatory environment for this industry across the EU makes a level playing field for commercial competition impossible to guarantee for the chlorine producing industry.

From all of the above it can further be concluded that for the chlor-alkali sector the existing IPPC permits (limits, measurements, controls etc.) are totally inadequate to protect the environment and public health or to demonstrate EU leadership on this issue globally.

As a result, this action has not really been implemented so far, but should be. We therefore strongly urge that remedial measures be taken in response to the important points made above.

Action 2.

The Commission will encourage Member States and industry to provide more information on mercury releases and prevention and control techniques, so conclusions can be drawn in BREFs helping to reduce emissions further. The second edition of the chlor-alkali BREF will include information to address the risk of releases in decommissioning mercury cells.

Short assessment of Action 2



Action 2 initially refers to all industries which could be releasing mercury. It then focuses only on the chlor-alkali industry.

Industry has been reporting their emissions under the European Pollutant Release and Transfer Register's (E-PRTR) obligations. Respective data also on mercury have been updated for most of the industries/countries for 2007. Nevertheless the 2004 emissions cannot be found any more to compare level of releases. Information on mercury emissions prevention and control techniques in different industries has potentially been discussed under the revision of several BREF documents for relevant industries, but no specific action has been taken to explicitly encourage Member States and industry to do so.

The European Commission started the review process for the chlor-alkali BREF in 2009. EEB has been following this process closely and has been contributing with input. It appears indeed, that the revised BREF will include information to address the risk of releases in decommissioning mercury cells. Discussions are still ongoing.

Furthermore, since 2005, some BREFs relevant to mercury - on cement industries¹⁰, Non-Ferrous Metals¹¹, and Production of Iron and Steel¹² have been revised or are in the revision process, – and they include BAT-AEL for mercury, or total heavy metals, referred to as mercury emissions, or included as BAT-AELs which may have a co-benefit effect with respect to mercury. The revision of the LCP BREF will start in 2010. EEB expects that prevention of mercury emissions will be adequately addressed and the Commission to actively contribute to that effect.

¹⁰ ftp://ftp.jrc.es/pub/eippcb/doc/clm_fd_0509_public.pdf , p. 181

¹¹ ftp://ftp.jrc.es/pub/eippcb/doc/nfm_2d_07-2009_public.pdf

¹² ftp://ftp.jrc.es/pub/eippcb/doc/isp_d2_0709.pdf

Action 3.

The Commission will undertake a study in 2005 of options to abate mercury emissions from small scale coal combustion, to be considered alongside the broader Clean Air For Europe (CAFE) assessment.

Short assessment of Action 3



A report on the "Costs and environmental effectiveness of options for reducing mercury emissions to air from small-scale combustion installations" was published in December 2005. Several recommendations are included in the report on the basis of different scenarios.

Nevertheless, the report has not further been commented or used and no additional measures have been proposed, although mercury emissions from the sector prove to be significant.

Under the CAFE assessment several air related directives merged to form the new directive 2008/50 on ambient air and cleaner air for Europe. Directive 2004/107/EC, relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, was not included in the new directive, and no changes have been made in terms of mercury. In addition, no quality standard was set, but only monitoring is requested by Member States; the study on mercury emissions from small combustion plants does not appear to have been considered.

The Commission proposed under the review of the IPPC directive (Industrial Emissions Directive) to include small combustion plants (20-50MW) within the scope of the new directive. The impact assessment to the proposal found that the main environmental impact from combustion plants is their contribution to air pollution, "especially through emissions of particulate matter, SO₂ and NO_x and also heavy metals (*especially mercury*) and Persistent Organic Pollutants." It also indicates that environmental benefits could not be qualified, but that the benefits clearly outweigh the costs.

However the lowering of the scope to include small combustion plants, was not supported by the majority of Member States and not maintained in second reading of the European Parliament.

According to current status, the Commission should review the need to include these types of installations and come up with a legislative proposal. Therefore, we strongly recommend that these installations need to be included in the scope of the Industrial Emissions Directive, as well as preventive measures for mercury emissions such as emissions limit values, which also need to be integrated in the minimum binding requirements for these types of installations.

Action 4.

The Commission will review in 2005 Member States' implementation of Community requirements on the treatment of dental amalgam waste, and will take appropriate steps thereafter to ensure correct application.

Short assessment of Action 4



Under the Waste framework directive (2008/98/EC) and Decision 2000/532/EC establishing a list of wastes, waste containing mercury, and therefore dental amalgam waste, are considered hazardous and should be separately collected and disposed of accordingly. As a result all dental clinics - usual source of dental mercury waste, should have been equipped with dental amalgam separators. Nevertheless the interpretation and implementation of such a measure varies greatly within Member States. In 2005, the European Commission (EC), DG Environment, sent a questionnaire to Member States related to the environmentally sound management and treatment of dental amalgam waste. This information was presented by DG

Environment at a relevant EEB conference¹³ organised in 2007 and commented in the COWI/Concorde SA report carried out for DG Environment in 2008 with specific focus on whether dental amalgam separators were installed and used in dental clinics. In the conference report, it is mentioned: ' *The situation may have changed in these countries during the last two years, but at the time of the questionnaire below, it was clear that no more than 30-40% of EU dental clinics had installed functioning amalgam separators*¹⁴. As a result, it is evident that no adequate measures are taken with respect to dental amalgam waste at EU level.

In September 2008¹⁵ - when a relevant question was raised at the European Parliament - the EC responded that although the (above mentioned) review carried out showed that implementation of adequate measures (obligatory installation of amalgam separators and recycling schemes) were not applied uniformly throughout the Community: ' *The Commission will insist on the importance of the issue in the appropriate expert groups and check that the issue of dental amalgam waste, and in particular its separation from waste water in dental healthcare facilities, is duly taken into account when the programmes of measures according to the Water Framework Directive are established.*'

The potential relevant measures through the Water Framework Directive (2000/60/EC), would refer to MS complying with the Quality Standards for mercury as defined under the Priority Hazardous Substances directive 2008/105/EC¹⁶; nevertheless the compliance with these directives is due much later, in 2015.¹⁷

In other words, instead of action towards Member States through the potential breach of the existing Waste Framework Directive (that should already be complied with by Member States), the European Commission appears to be simply postponing action related to dental amalgam waste management, to be taken later on under a directive compliance with which is not yet requested. This is clearly unacceptable and we would urge the Commission to ensure uniform compliance by Member States.

1.2. REDUCING SUPPLY

Action 5

As a pro-active contribution to a proposed globally organised effort to phase out primary production of mercury and to stop surpluses re-entering the market as described in section 10, the Commission intends to propose an amendment to Regulation (EC) No. 304/2003 to phase out the export of mercury from the Community by 2011.

Short assessment of Action 5



The Regulation on the banning of exports and the safe storage of metallic mercury (Regulation (EC) N° 1102/2008), was adopted on 22 October 2008. The export from the Community of metallic mercury, cinnabar ore, mercury (I) chloride, mercury (II) oxide and mixtures of metallic mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95 % by weight, shall be prohibited from 15 March 2011. Furthermore, metallic mercury from specific sources - that is no longer used in the chlor-alkali

¹³ http://www.zeromercury.org/EU_developments/070525_EEB_Dental_Amalgam_conference.html

¹⁴ "Options for reducing mercury use in products and applications and the fate of mercury already circulating in society" , p.58 http://ec.europa.eu/environment/chemicals/mercury/pdf/study_report2008.pdf

¹⁵ <http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2008-3980&language=EN>

¹⁶ http://ec.europa.eu/environment/water/water-dangersub/pri_substances.htm

¹⁷ http://ec.europa.eu/environment/water/water-framework/info/timetable_en.htm

industry, gained from the cleaning of natural gas, from non-ferrous mining and smelting operations and metallic mercury extracted from cinnabar ore, shall be considered waste and be disposed of accordingly.

On the basis of the above, the primary production of mercury in Europe is indirectly prohibited.

As a result Action 5 has been successfully implemented.

However, following up on the requirements of the regulation itself, article 8 requires that the Commission organise an exchange of information between Member States and relevant stakeholders, by 1 January 2010, to examine the need for:

(a) extending the export ban to other mercury compounds, mixtures with a lower mercury content and products containing mercury, in particular thermometers, barometers and sphygmomanometers;

(b) an import ban of metallic mercury, mercury compounds and products containing mercury;

(c) extending the storage obligation to metallic mercury from other sources;

(d) time limits concerning temporary storage of metallic mercury.

This exchange of information shall also consider the research on safe disposal options.

The Commission shall organise further exchanges of information when new relevant information has become available.

The Commission, organised an information exchange in November 2009, which was focused however on a study relevant to fulfilling the requirements of Article 4 of the regulation - the need to develop requirements for storage and disposal facilities as well as acceptance criteria for metallic mercury, and review ongoing research activities on safe disposal options, including solidification of metallic mercury¹⁸.

The EU consultation on the draft BIO report on the EU mercury strategy review was also considered as information exchange on the above issues, held 18 June 2010.

1.3. REDUCING DEMAND

Action 6.

In the short term the Commission will ask the Medical Devices Expert Group to consider the use of mercury in dental amalgam, and will seek an opinion from the Scientific Committee on Health and Environmental Risks, with a view to considering whether additional regulatory measures are appropriate.

Short assessment of Action 6



Following the requirements of Action 6, the European Commission requested the opinion of the relevant EU Scientific Committees to consider whether additional regulatory measures would be appropriate concerning the use of mercury in dental amalgam.

¹⁸ Requirements for facilities and acceptance criteria for the disposal of metallic mercury, Final Report, 16 April 2010, BiPRO, http://www.bipro.de/mercury/docs/Final%20report_100416.pdf

As a result, the Scientific Committee on Health and Environment Risks (SCHER) was asked to respond on whether mercury releases caused by the use of dental amalgam (and from the use of mercury-free alternatives) are a risk to the environment, and whether it is scientifically justified to conclude that mercury in dental amalgam could cause serious effects on human health due to mercury releases into the environment (also in comparison to potential effects from mercury-free alternatives). In case more information would be needed, the committee was asked to provide a detailed list thereof.¹⁹

In parallel, the Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), was asked to examine whether there is scientific evidence that supports a link between amalgam (and mercury free alternatives) and allergic reactions, neurological effects and other health disorders, and whether -in view of the above - the use of dental amalgam (mercury-free alternatives) is safe for patients and users, (i.e. dental health professionals, and whether certain populations are particularly at risk, e.g. pregnant women or children.) They were further asked to deliver an opinion on whether dental health is equally ensured by dental amalgam and alternatives when used for dental restorative treatment.²⁰

The preliminary opinions of the two committees were published in January 2008 and opened for public consultation. The EEB and many other Environment, Health and Patients' Non-governmental organisations sent their comments²¹ criticising the results of the reports. No major changes were made in the final reports by SCHER and SCENIHR regarding the opinion on health and environmental effects by mercury dental amalgams, following the public consultation; NGO's comments were not really taken into account.

In May 2008, the scientific committees published their final opinions²².

Therefore looking at the requirements of Action 6, it can be said that the EC fulfilled those relatively successfully.

However, notwithstanding whether we agree with the outcome of the opinions, the SCHER opinion concluded among other, that *'it is clear that the information presently available does not allow (us) to comprehensively assessing the environmental risks and indirect health effects from use of dental amalgam in the Member States of the EU25/27.*

To allow this type of assessment, the following information is required:

- *More specific information on possible regional-specific differences in the use, release and fate of Hg originating from dental amalgam. This includes detailed quantitative information on the use and release pattern in all EU-25/27 countries, possible country-specific abatement measures, and differences in the fate of mercury due to regional-specific municipal waste water treatment and sludge application practices.*
- *A comprehensive and updated data compilation on the effects to especially (various) environmental species of Hg and methylmercury.*
- *A more comprehensive evaluation of atmospheric emissions and further deposition of mercury from crematoria, taking into account EU-wide practices and possible region-specific local scenarios.*
- *A comprehensive literature review of the bioaccumulation and biomagnification of methylmercury under different EU conditions.*
- *A detailed comparison of the relative contribution of dental Hg to the overall mercury pool - originating from intended and non-intended Hg - in the environment.'*

¹⁹ http://ec.europa.eu/health/ph_risk/committees/04_scher/docs/scher_q_050.pdf

²⁰ http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_q_009.pdf

²¹ <http://www.zeromercury.org/indexDental.html>

²² http://ec.europa.eu/health/ph_risk/committees/04_scher/docs/scher_o_089.pdf,
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_016.pdf

Although the conclusions presented above mention that they are based only on limited information and they indicate that more information is needed - no further action was taken from the European Commission. Given the lack of available information to conclusively address the above issues, we believe that the Commission must revisit it and also request an outside independent consultant to address the outstanding issues.

Action 7.

The Commission intends to propose in 2005 an amendment to Directive 76/769/EEC to restrict the marketing for consumer use and healthcare of non-electrical or electronic measuring and control equipment containing mercury.

Short assessment of Action 7



Directive 2007/51/EC, restricting the sale of mercury fever thermometers for consumers and in healthcare, was adopted in October 2007. It further banned the sale of other mercury-containing measuring devices for consumer use such as sphygmomanometers, barometers, manometers etc. The measures entered into force on 3rd April 2009. Furthermore, following the directive, requirements the European Commission carried out a review of the availability of reliable safer alternatives that are technically and economically feasible for mercury-containing sphygmomanometers and other measuring devices in healthcare and in other professional and industrial uses. On the basis of this review, and on the basis of the information that was collected during the review, the EC requested the European Chemicals Agency (ECHA), to make a proposal under the REACH²³ 'Restriction' process, and requirements of Art. 69. ECHA is expected to make the relevant proposal and eventually propose a restriction of the use of mercury sphygmomanometers in healthcare, in June 2010. Process under ECHA is on-going.

On the basis of the above this action has been successfully implemented.

Action 8.

The Commission will further study in the short term the few remaining products and applications in the EU that use small amounts of mercury. In the medium to longer term, any remaining uses may be subject to authorisation and consideration of substitution under the proposed REACH Regulation, once adopted.

Short assessment of Action 8



Following this action, DG- Environment requested consultants COWI and Concorde SA to carry out a study investigating “Options for reducing mercury use in products and applications, and the fate of mercury already circulating in society”²⁴.

This study strengthens the foundation for further policy decisions by providing:

- *an overview of current use of mercury for processes and in products in the European Union, and of mercury accumulated in society in products, at production facilities, on the grounds of contaminated sites and within other stocks and inventories;*
- *an overview of the waste handling situation and recycling paths in the EU, as well as of*
- *national legislation that goes beyond current EU legislation; and*

²³ Regulation on Registration, Evaluation, Authorisation and Restriction of Chemical substances, EC 1907/2006, http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm

²⁴ http://ec.europa.eu/environment/chemicals/mercury/pdf/study_report2008.pdf

- *an assessment of options for reducing major inputs of mercury to society in dental amalgams, measuring equipment, mercury catalysts in polyurethanes and mercury porosimetry.'*

The study has quantified the mercury use for some significant applications of mercury that have drawn less attention until now, examined the level of substitution and the potential impact on manufacturers. It further carried out a more detailed review of the main impacts resulting from a range of possible further policy measures on four areas:

- *Dental amalgams (including mercury input and waste management);*
- *Measuring devices for professional uses (including a detailed assessment of thermometers, barometers and sphygmomanometers);*
- *Mercury catalysts for polyurethane elastomers; and*
- *Mercury porosimetry.*

The benefits of reduced uses of mercury and releases from these categories was discussed and options for reducing mercury input was proposed.

The overall conclusions of the report state the following: *'Of the applications for which impacts have been analysed more closely, there is a sound basis for concluding that dental amalgam and thermometers should be seriously considered for further restrictions, while measures to reduce the mercury input due to sphygmomanometers, barometers and PU elastomers may be put forward as soon as possible without major impacts on manufacturers and users.*

With respect to dental amalgams, obligatory installation of high efficiency filters in dental clinics is a very cost-effective measure for reducing mercury releases to the waste water systems and may be put forward as soon as possible.'

No further action was taken so far following these conclusions in respect to proposing uses of mercury to be subject to authorisation apart from the submission of Norway to restrict some mercury in the manufacturing of polyurethane elastomer (and ECHA's submission following action 7). This was also underlined by a few Member states during the consultation meeting of 18 June 2010.

Action 9.

The Commission will take action to pursue the storage of mercury from the chlor-alkali industry, according to a timetable consistent with the intended phase out of mercury exports by 2011. In the first instance the Commission will explore the scope for an agreement with the industry.

Short assessment of Action 9



As mentioned above, the Regulation on the banning of exports and the safe storage of metallic mercury (Regulation (EC) N° 1102/2008), was adopted on 22 October 2008. Further to the export ban provisions it foresees that metallic mercury from specific sources - that is no longer used in the chlor-alkali industry, gained from the cleaning of natural gas, from non-ferrous mining and smelting operations and metallic mercury extracted from cinnabar ore, shall be considered waste and be disposed of accordingly.

Further to that the EC adopted a decision acknowledging the voluntary agreement by the European Chlorine Council (Euro Chlor), to store safely mercury no longer used in the chlor-alkali industry.

In addition, on the basis of Art. 4 of the Regulation, the EC should develop requirements for storage and disposal facilities as well as acceptance criteria for metallic mercury. To that end, a study was commissioned to German consulting company BiPRO - who finalised the report in

April 2010²⁵, after consultation period and a workshop held where the intermediate conclusions of the report were discussed (November 2009).

On the basis of the recommendations made, the EC is still expected to develop and propose respective requirements to amend Annexes I, II and III of Directive 1999/31 on the landfill of waste.

Therefore this action has been completed successfully until now.

Action 10.

The Commission will undertake further study in the short to medium term of the fate of mercury in products already circulating in society.

Short assessment of Action 10



This action appears similarly to be covered by the study “Options for reducing mercury use in products and applications, and the fate of mercury already circulating in society” as discussed in Action 8.

Action 11.

In the short term, the European Food Safety Authority (EFSA) will investigate further specific dietary intakes of different types of fish and seafood among vulnerable subpopulations (e.g. pregnant women, children).

Short assessment of Action 11



EFSA has been requested by the European Commission or Member States to provide risk assessments on uranium, cadmium, mercury, lead and arsenic in food. This work is carried out by the Panel on contaminants in the food chain (CONTAM Panel).

In 2004 the CONTAM Panel adopted an opinion on mercury and methylmercury, the latter being the main mercury compound present in fish and seafood products. The opinion looked at the contribution of different foods towards overall human exposure and the risks to vulnerable groups, in particular pregnant women and children. The Panel concluded that methylmercury toxicity has been demonstrated at low exposure levels, and therefore exposure to this compound should be minimised. However, it also noted that fish constitutes an important part of a balanced diet. *'Methylmercury is particularly toxic to the nervous system and the developing brain. Exposure during pregnancy and early infancy is therefore of particular concern. Pregnant women eating up to two portions of fish per week are unlikely to exceed provisional tolerable weekly intake (PTWI) levels for methylmercury, as long as they do not consume blue fin or albacore tuna. (These species are not likely to be found in canned tuna in Europe). Other top predatory fish, such as marlin, pike, swordfish, and shark also frequently contain high levels of methylmercury. EFSA already recommended in March 2004²⁶ that women of childbearing age (in particular, those intending to become pregnant), pregnant and breastfeeding women, as well as young children, select fish from a wide range of species without giving undue preference to top predatory fish, such as swordfish and tuna'.*

The above mentioned opinion, was however adopted before the adoption of the EU mercury strategy and more up to date information that looks specifically at the amounts and kinds of

²⁵ Requirements for facilities and acceptance criteria for the disposal of metallic mercury, Final Report, 16 April 2010, BiPRO, http://www.bi-pro.de/mercury/docs/Final%20report_100416.pdf

²⁶ http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1178620786349.htm

fish which people are consuming throughout Europe, and particularly the consumption patterns of vulnerable groups, has not been forthcoming.

EFSA has also provided advice on the safety and nutritional contribution of wild and farmed fish in 2005. The CONTAM Panel assessed the health risks related to human consumption of wild and farmed fish, including an overall risk assessment related to the consumption of Baltic herring. EFSA's advice concentrated on the most relevant metals and persistent organic contaminants, namely methylmercury, dioxins and dioxin-like PCBs. It also reviewed the nutritional value and benefits from consuming fish.²⁷

Commission Regulation 1881/2006 lays down maximum levels for certain contaminants in foodstuff, including lead, cadmium, mercury and inorganic tin. Commission Regulation 333/2007 covers the methods of sampling and analysis for the official control of the maximum levels of these metals. Surveillance for residues of chemical elements in foods of animal origin is specified in Council Directive 96/23/EC.

No further action and awareness campaigns based on up to date information on actual consumption patterns, have taken place to really inform the public about the above mentioned opinion, for example at the place of sale of relevant fish species which may contain high levels of mercury.

Action 12.

The Commission will provide additional information concerning mercury in food as new data become available. National authorities will be encouraged to give advice in the light of local specificities.

Short assessment of Action 12



An Information note was published by DG Health and consumer affairs on 12 May 2004, mentioning among other ' *Women who might become pregnant, women who are pregnant or women who are breastfeeding should not eat more than one small portion (<100g) per week of large predatory fish, such as swordfish, shark, marlin and pike. If they eat this portion, they should not eat any other fish during this period. Also, they should not eat tuna more than twice per week. Parents should be aware that this advice also applies to young children. Consumers should also pay attention to any more specific advice from national authorities in light of local specificities.*'²⁸

In April 2008, DG Health and Consumers issued an "Information Note" concerning "Methyl mercury in fish and fishery products"²⁹. The text is exactly the same as in the Information note of 2004 (!) apart from one paragraph.

In spite of the above conclusions - that women and young children should pay particular attention on the quantities and types of fish they eat, no relevant information was proposed to be added under the 2008 EC proposal for a the Regulation on 'Food information to consumers'³⁰.

No special action has been taken to our knowledge in view of encouraging National authorities to give advice, or raise awareness at the place of sale of fish, thereof. However, without employment of effective risk communication strategies, including labelling of larger predatory

²⁷ <http://www.efsa.europa.eu/en/contamtopics/topic/metals.htm>

²⁸ http://ec.europa.eu/food/food/chemicalsafety/contaminants/information_note_mercury-fish_12-05-04.pdf

²⁹ http://ec.europa.eu/food/food/chemicalsafety/contaminants/information_note_mercury-fish_21-04-2008.pdf

³⁰ http://ec.europa.eu/food/food/labellingnutrition/foodlabelling/publications/proposal_regulation_ep_council.pdf

fish known to have high mercury levels by the appropriate authorities, sensitive populations will not be made aware of the clearly avoidable risks of consumption of high mercury fish,

Action 13.

Priorities for mercury research will be addressed in the 7th RTD Framework Programme and other appropriate funding mechanisms.

Short assessment of Action 13



Mercury was addressed during the development of the 7th RTD Framework programme.

Two studies appear to have been funded under the 7th RTD Framework programme on mercury:

1. HG-197 MEHG ASSESS

Title: *Evaluation of Methyl-mercury production and decomposition by using Hg-197 radiotracer produced out of mercury enriched in Hg-196 isotope*

Research area: *PEOPLE-2007-4-2.IIF Marie Curie Action: "International Incoming Fellowships"*

Project start date: *[2009-12-16]*

2. MERCTIC

Title: *Mercury biogeochemistry in the high Arctic*

Research area: *FP7-PEOPLE-IIF-2008 Marie Curie Action: "International Incoming Fellowships"*

Project start date: *[2010-01-11]*

Furthermore a LIFE preparatory project has been funded in 2006, ' *Design, construction and validation of a prototype installation for a safe deposit of surplus mercury from the European industry* ' - MERSADE LIFE06 ENV/ES/PREP/03; the project was foreseen to be completed by September 2009.

The LIFE project was directly relevant to ongoing discussions on metallic mercury storage options, and some of its results have already been considered in relevant discussions at EU level. However its full input to the policy work still needs to be discussed. The input from the other projects does not seem to have been used nor discussed at the time being.

1.4 ACTIONS AT INTERNATIONAL LEVEL

Action 14.

The Community, Member States and other stakeholders should pursue input to international fora and activities, and bilateral engagement and projects with third countries, including technology transfer, to address the mercury problem.

Short assessment of Action 14



Action 15.

The Commission will consider establishing a specific funding scheme for research and pilot projects to reduce mercury emissions from coal combustion in countries with a high dependency on solid fuels, e.g. China, India, Russia, etc., similar to the CARNOT programme that promotes the clean and efficient use of solid fuels.

Short assessment of Action 15



Action 16.

The Community should promote an initiative to make mercury subject to the PIC procedure of the Rotterdam Convention.

Short assessment of Action 16



Action 17.

The Community and Member States should continue to support work under the Heavy Metals Protocol to the UNECE Convention on Long Range Transboundary Air Pollution.

Short assessment of Action 17



Action 18.

The Community, Member States and other stakeholders should also support the UNEP Global Mercury Programme, e.g. through review of materials and provision of technical knowledge and human and financial resources.

Short assessment of Action 18



Action 19.

The Community and Member States should support global efforts contributing to reduced use of mercury in the gold mining sector, e.g. the UNDP/GEF/UNIDO Global Mercury Project. They will also consider possibilities to support individual developing countries through the various instruments related to development cooperation assistance, taking national strategies

Short assessment of Action 19



Action 20.

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, under an initiative similar to that of the Montreal Protocol on substances that deplete the ozone layer. To support this objective, the envisaged amendment of Regulation (EC) No. 304/2003 would phase out the export of mercury from the Community by 2011.

Short assessment of Action 12



Regarding actions 14-20 relevant to the international work of the EU, we generally agree with the assessment of the consultants BIO. Please see relevant comments below.

Politically speaking the EU has been leading the process at UNEP level, something which eventually led to the decision 25 of the Governing Council to develop a legally binding instrument on mercury by 2013.

However, apart from some projects going on in relation to mercury, the EC and individual Member States do not appear to have contributed (yet) to paragraph 34 and 35 of UNEP GC 25/5, nor been involved actively involved in the UNEP Global Mercury Partnership:

GC 25/5.34. Further requests the Executive Director, coordinating as appropriate with Governments, intergovernmental organizations, stakeholders and the Global Mercury Partnership, subject to the availability of resources and concurrently with the work of the intergovernmental negotiating committee, to continue and enhance, as part of the international action on mercury, the existing work, in the following areas:

(a) Enhancing capacity for mercury storage;

- (b) Reducing the supply of mercury from, for example, primary mercury mining;
- (c) Conducting awareness-raising and pilot projects in key countries to reduce mercury use in artisanal and small-scale gold mining;
- (d) Reducing mercury use in products and processes and raising awareness of mercury-free alternatives;
- (e) Providing information on best available techniques and best environmental practices and on the conversion of mercury-based processes to non-mercury based processes;
- (f) Enhancing development of national inventories on mercury;
- (g) Raising public awareness and supporting risk communication;
- (h) Providing information on the sound management of mercury;

35. Urges Governments, intergovernmental organizations, industry, non-governmental organizations and academic institutions to continue and enhance their support for the activities set out in paragraph 34 of the present decision and for the Global Mercury Partnership through the provision of technical and financial resources, such as by supporting the implementation of country-based projects that tackle mercury risk reduction and risk management;

These should be seen as an inseparable piece of the development of the mercury treaty, since on the ground action is expected to facilitate and further enhance decisions on measures in the different areas.

2. Partial proposals for new and follow up actions for the new EU Mercury Strategy³¹

Considering the developments at global level new and follow up actions for the new EU Mercury strategy are discussed in the order of the elements listed in Paragraph 27 of the UNEP GC 25/5 decision which are to be considered when developing a global legally binding instrument on mercury.

Given time constraints when developing these comments, the following proposals cover only part of the areas that should be addressed by the new EU mercury strategy.

Summary of EEB proposed actions

Reduce Supply and enhance environmentally sound storage.

1. Consider expanding the scope of obligatory disposal of mercury from mercury containing-waste.
2. Restrict imports of mercury and mercury compounds in the EU for purposes other than storage or sequestration.
3. Set up a trade tracking system to record and provide information from exports and imports of elemental and compound mercury between Member States and between EU and external countries.

Reduce the demand for mercury in products and processes

4. A specific sunset date for all mercury-cell chlor-alkali plants, both sodium – and potassium-based should be set. The EEB has been advocating for 2010 as a phase out date for many years, but recognizes a later date is now necessary due to delays in taking appropriate action.
5. At EU level, the European Commission should come forward with legislation specific to the chlor-alkali industry, including not only a specific sunset date for the mercury-cell chlor-alkali plants, but also minimum requirements, reporting obligations, and mercury

³¹ as per EEB comments of 3 June 2010

emission limit values for the mercury-cell chlor-alkali plants that will choose to operate until the sunset date.

6. Phase out the use of dental amalgam. Justified, time limited exemptions could be considered.
7. Take measures to ensure 100% mercury used in porosimetry - pycnometry is recycled.
8. Phase out the use of mercury in porosimetry - pycnometry, with justified, time limited exemptions.
9. Phase out the use of mercury in polyurethane elastomers.
10. Ban the production and sale of mercury containing button cells by revising as soon as possible the EU batteries directive.
11. The remaining exemptions in the battery directive must be re-examined because they too are outdated, lack specificity, and may be subject to significant abuse.
12. Restrict further the mercury use in light sources for certain categories.
13. Propose maximum limits for lamp categories which currently have a blanket exemption.
14. Ensure a Rapid Phase-out of Clinical Mercury-Sphygmomanometers sales via the REACH restriction route.
15. Take action to promote Development and Validation of an Alternative Reference Standard.
16. Phase out the use of mercury in new light houses.
17. Request obligatory safe disposal of mercury used in existing lighthouses, amending accordingly the regulation 1102/2008/EC an EU export ban and safe storage of mercury.
18. An expert assessment should be undertaken to determine the extent to which mercury can be appropriately eliminated from vaccines to better protect public health.
19. The Commission should undertake a review of vaccines, to ensure that thimerosal-containing vaccines are not in use in Europe, where alternatives are available. An agreement with manufactures should be sought to eliminate the use of thimerosal in vaccines where not necessary. Wherever needed, vaccines should be labelled to declare mercury contents. Furthermore, the EMEA should publish a comprehensive list of all vaccines licensed in Europe and their thimerosal content, as the FDA does in the United States. Further, the Commission should issue guidelines calling on the EMEA and other health organizations to work with manufacturers to reduce and/or eliminate mercury in vaccines. To that end, priority should be given on research and development of safe, mercury-free, multi-dose vaccines.

Restrict international trade in mercury

20. *Implement fully regulation 1102/2008/EC (Mercury export ban); examine in further depth and consider all available information*

- a. ***extend the export ban to include mercury compounds and those mercury-containing products subject to EU use and marketing restrictions.***
- b. ***restrict imports of mercury and mercury compounds into the EU for purposes other than sequestration (i.e. final storage or disposal).***
- c. ***Establish an effective trade tracking and licensing mechanism for tracking imports and exports, and enforcing the trade restrictions.***

Reduce atmospheric emissions of mercury

21. Measures designed to prevent emissions of mercury such as mass specific emissions limit values from combustion of fuels plants and mainly coal and other relevant activities under the Integration Pollution Prevention and Control (IPPC) Directive or the forthcoming Industrial Emissions Directive (IED), other existing legislation or a separate legislative instrument should be introduced and the Commission should take action as soon as possible.
22. National mass emission limits as well as local air quality limits for mercury should be set under relevant existing or a separate legislative instrument.
23. In addition to mercury emission control technologies, the use of low-mercury coal, coal cleaning, selection of coal for low-mercury emissions, or switching to a cleaner fuel should be implemented over time. Such issues should be considered when revising the respective BREFs and for research and development if necessary.
24. In light of the major contribution of the industrial sector to mercury air emissions, it is necessary to set mass specific Emission Limit Values in line with BATAEL for mercury, as minimum action, from all relevant activities – including the chlor-alkali sector, cement manufacturing, and secondary steel production.
25. A sunset date should be set for the mercury use in the chlorine sector.
26. Under the review of the BREF on chlor-alkali, the mercury-cell technique shall not be presented under the BAT chapter (Chapter 5) but only conversion to the Membrane process should. For the remaining life of Mercury cell chlor-alkali plants (MCCAP) a maximum Best Achievable Emission Levels should be referred to in the BREF as 0,2- 0,5 g Hg/tonne of Cl₂ production capacity, as a clear guideline for permit writers . Following this, there is a need for more enforcement and follow ups of the chlor alkali plants to ensure they implement the the BREF.
27. All BREFs for relevant industries should include measures to prevent mercury emissions and BAT Associated Emission Levels for mercury.
28. The role of the BREFs in the IPPC/IED directive should further be strengthened.
29. The Large Combustion Plants Directive (2001/80/EC), the IPPC (merged in the IED Directives) should be extended to cover mercury emissions from combustion of fuels from installations with a thermal input of 20MW and above as well as residential coal combustion. A complementary legislative instrument could be developed.
30. Rather than relying on the incidental capture of mercury by pollution control technologies designed to capture other pollutants, it is imperative that binding measures on prevention such as Emission Limit Values be established, as in the case of waste incinerators, to achieve consistently high reductions in mercury emissions. In this way, pollution control measures for mercury can be integrated into retrofits to meet ELVs for SO₂, PM, and NO_x by 2008 under the LCP Directive and BAT in the IPPC BREF.
31. Recommendations of the 2005 study on small scale coal combustion plants should be implemented.
32. Mercury emissions from crematoria should be further investigated, including relevant technologies or other effective approaches, for eventual control at EU level. Emission limit values for this source should be proposed by the European Commission as soon as possible. Crematoria should be included in the scope of IED (Annex I) so that BAT in relation to mercury emissions prevention/control get applied. New crematoria should be subject to more stringent requirements.

Address mercury-containing waste and remediation of contaminated sites

33. The EC should take measures to further raise awareness and increase knowledge on the fact that certain products contain mercury, to ensure that for those products which relevant

law is in place, these are collected separately and safely (e.g. lamps, batteries). Better labeling of products containing mercury will also facilitate separate collection.

34. For products/waste the separate safe collection of which is not explicitly requested by law- e.g. for mercury thermometers, additional measures need to be taken thereof.
35. Those EU Member States which currently lack legislative measures for amalgam separators requirements should provide a timetable for doing so to the Commission in the short term. Those failing to provide this timetable should be identified as priorities for follow-up administrative action by Commission staff.
36. Introduce obligatory measures ensuring that highly efficient amalgam separators are installed in dental clinics. More rigorous installation and monitoring as regards separation, the introduction of devices in the wastewater system of dental offices, good record-keeping and devices that meet a high standard would be needed.
37. In addition, the Commission should ensure that mercury-laden pipes and plumbing fixtures (i.e. nearly all wastewater systems serving dental practices) are cleaned and/or replaced since they have long accumulated mercury wastes and constitute an ongoing source of mercury release. Other dental-related activities should include: ensuring historic supplies of elemental mercury currently stored at dental offices are appropriately managed, and ensuring that mercury-laden solid wastes from dental offices are handled as hazardous waste, in accordance with law, so that they are removed from the economic cycle rather than improperly disposed of, or combusted in medical or municipal waste incinerators.
38. Contaminated sites (former mining sites and others) should be identified and classified according to the degree of contamination and urgency of remediation.
39. The contribution of mercury emissions from contaminated sites to the overall emissions should be calculated.
40. Standards and methodologies should be developed and agreed upon on a European-wide basis and harmonised with those under development in other parts of the world.
41. Harmonised and standardised protocols for estimation of emissions should also be considered in order to obtain comparable data.
42. Integrated tools for the remediation of mercury-contaminated sites should be developed.
43. Mixed exposure of humans and wildlife to inorganic mercury and organomercury (MeHg) in mercury polluted sites should further be addressed and studied, due to possible combined effects.
44. Areas contaminated by mercury (former mining sites and others) need to be further restored and brought to a reasonable condition.

Reduce emissions to water and soil

45. Revision of the EU directive on sludge, dated from 1986 (86/278), is needed as soon as possible individually or in a package with the eventual adoption of the soil framework directive.

Protect against exposure³²

46. *An updated EU-wide risk communication and fish testing program for methylmercury in fish.*

³² Section revised in relevance to EEB comments submitted 3rd June 2010.

2.1. Reduce the supply of mercury and enhance the capacity for its environmentally sound storage;

2.1.1. Reduce Supply

On the basis of regulation 1102/2008 on a Mercury export ban - certain sources of mercury have been identified- the mercury from which shall be considered as waste and be disposed of by March 2011; these sources are

- a) metallic mercury that is no longer used in the chlor-alkali industry;
- (b) metallic mercury gained from the cleaning of natural gas;
- (c) metallic mercury gained from non-ferrous mining and smelting operations; and
- (d) metallic mercury extracted from cinnabar ore in the Community as from 15 March 2011.

Nevertheless other sources of mercury still exist as they have been identified in the 2008 study carried out from COWI, Concorde SA on behalf of the European Commission, DG Environment. These existing sources of mercury are:

- mercury recycled from mercury-containing products and waste,
- imported elemental mercury, mercury compounds and mercury containing-products
- mercury from lighthouses, laboratories, schools, etc.

On the basis of the elements included in the above mentioned study - the EC should further examine if and when mercury from these sources should also be considered waste and included in the scope of the regulation.

As discussed with the EU institutions while developing the EU mercury export ban and storage regulation, the EU should consider restricting imports of mercury and mercury compounds for purposes other than storage or sequestration in order to:

- ensure EU mercury supplies are consistent with EU demand, mandatory storage obligations, and policies encouraging mercury recovery from wastes and products.
- better protect the EU waste/mercury recyclers – avoiding low-cost mercury flooding EU market.

Such a restriction would also facilitate the development of a trade tracking system, to provide information periodically and to record all exports and imports of elemental and compound mercury between Member States, and between the EU and external countries.

- Periodical reporting will ensure transparency of the trade, and allow developments that run contrary to the intention and effectiveness of the ban to be easily assessed by the Commission and stakeholders.
- It would create a level playing field for mercury importers and traders (including recyclers), giving them an incentive to take responsibility for their commerce.
- Member States should provide information to the EC regularly, and the EC should make this information public.
- The movement of mercury within the industry sector should also be recorded and reported to the Commission.
- The tracking system data should include: companies' identity, country, location, quantities involved, purpose of use, etc.

- It shall be ensured that information from the relevant industries is submitted to the Member States regularly; the information shall include figures on the total amount of mercury still in use, recycled/recovered, sent for storage, transfers, amounts stored onsite temporarily etc.

We do not propose restrictions of imports where the mercury or mercury compounds are intended for storage or sequestration purposes. Global coordination to remove the mercury in circulation from global commerce will require substantial international cooperation and coordination. It is premature to preclude any potential roles and responsibilities for the EU and Member States in this regard.

Actions proposed

1. Consider expanding the scope of obligatory disposal of mercury from mercury containing-waste.
2. Restrict imports of mercury and mercury compounds in the EU for purposes other than storage or sequestration.
3. Set up a trade tracking system to record and provide information from exports and imports of elemental and compound mercury between Member States and between EU and external countries.

2.1.2. Environmentally sound storage for mercury

At the EU level the Landfill directive 1999/31 defines the different categories of waste (municipal waste, hazardous waste, non-hazardous waste and inert waste) and applies to all landfills, defined as waste disposal sites for the deposit of waste onto or into land. Landfills are divided into three classes: landfills for hazardous waste; landfills for non-hazardous waste; and landfills for inert waste. Liquid waste however are not accepted in a landfill according to the Landfill directive. The landfill directive is supplemented by Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.

On the basis of regulation 1102/2008 on the EU Export ban and safe storage of mercury, metallic mercury from certain sources is considered waste and should therefore be disposed of according to the relevant EU waste legislation as above. Because of the liquid nature of mercury, derogation from directive 1999/31 is provided in the regulation which allows metallic mercury that is considered as waste to be, in appropriate containment, (a) temporarily or permanently stored in salt mines adapted for the disposal of metallic mercury, or in deep underground, hard rock formations providing a level of safety and confinement equivalent to that of those salt mines; or (b) temporarily stored in above-ground facilities dedicated to and equipped for the temporary storage of metallic mercury. The particular risks arising from the nature and long-term properties of the metallic mercury and its containment should be considered, for the safety assessment to be covered.

Furthermore, The requirements for facilities referred to in Article 3(1)(a) and (b) of this Regulation as well as acceptance criteria for metallic mercury, amending Annexes I, II and III of Directive 1999/31/EC, shall be revised accordingly, after a relevant proposal by the Commission by 1st January 2010. No final disposal operation can be permitted before adoption of the amended annexes.

To meet above requirements the European Commission, commissioned a study to consultant BiPRO GmbH, Germany to carry out the study "Requirements for facilities and acceptance

criteria for the disposal of metallic mercury.” The study was finalised in April 2010 and contains a relevant set of proposals. The EC is now expected to take steps in view of revising the annexes and adopting relevant requirements accordingly.

According to the BiPRO study - salt mines appear to be sufficiently safe for long-term storage of liquid or solidified/stabilised mercury. Nevertheless, concerns have been raised mainly on the long-term behaviour of metallic mercury (and its solidified form) in salt mines.

To that end and as EEB has already commented during the public consultation on the issue, we would like to stress once more that potential time constraints in deciding what is the best way to store or sequester mercury, permanently, should not compromise the safety and the potential for exposure of future generations to mercury. We generally believe that, if determined viable, solidifying the liquid mercury before its final storage/sequestration could be the safest solution, as an emerging technology appears promising at this time. Yet at this time we must continue to view these emerging technologies as unproven and therefore subject to the need for additional scrutiny before we can support them. Therefore, it's clear that more studies are needed to ensure the long term safety aspects for their acceptance and respective facility requirements, and adequate time should be allocated respectively. In the meantime, safe temporary solutions should be given priority in the near term.

Considering that the EC is about to propose respective measures as per above, no further action is proposed for the new EU Mercury Strategy at this stage.

2.2. Reduce the demand for mercury in products and processes;

In the EU mercury is still used in different products and processes. The biggest use at the moment is in the production of chlorine and caustic soda, followed by use in dental amalgams, in porosimetry and pycnometry, in chemicals-catalysts etc (mainly polyurethane), light sources, batteries, measuring equipment and switches and relays.³³

2.2.1. Mercury use in the chlorine industry

The EU mercury strategy apart from making general reference to the chlor-alkali industry it has not addressed the problematic of continuous use of mercury and related emissions from the sector. However, this is the sector where vast information and evidence of the need to phase out mercury use has been collected.

It is therefore imperative that the new EU mercury strategy sets a phase out date of mercury use in the sector as soon as possible, for the following reasons:

- In the EU more than 40% of the chlorine production is based on the mercury-cell process. Around 40 mercury-cell chlor-alkali plants (MCCAPs) are still in operation in Europe – ‘housing’ around 9.000 tonnes of mercury.
- The membrane process, which is mercury-free and consumes up to 30% less energy leading to significant cost savings, has been available since the 1980s.
- In 1990 already, OSPAR Decision 90/3 of 14 June³⁴ recommended reducing chlor-alkali mercury emissions to 2 grams of mercury per tonne of Cl₂ capacity and phasing out the

³³ COWI, Concorde study for DG ENV, 2008, Options for reducing mercury use in products and applications, and the fate of mercury already circulating in society, http://ec.europa.eu/environment/chemicals/mercury/pdf/study_report2008.pdf

³⁴ www.ospar.org/documents/dbase/decrecs/decisions/pd90-03e.doc

- activities of existing mercury-cell installations in chlor-alkali production plants as soon as possible, with the aim of achieving the objective of their total closure by 2010 at the latest.
- At EU level, the Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC), requires installations to operate subject to permits based on the best available techniques (BAT). The benchmarks or criteria on which BAT relies are described in the BAT Reference Documents (BREFs). According to the chlor-alkali BREF³⁵, the membrane (mercury free) process, and not the mercury-cell process, is regarded as BAT for the chlor-alkali industry.
 - As a region, the EU accounts for the greatest number of plants and the highest percentage of production capacity still using the mercury-based process. The US has only four remaining plants and are currently discussing future legislation to phase them out by 2015/18³⁶. In India there is a voluntary agreement between government and industry, initiated by the (Indian) Central Pollution Control Board, according to which the phase-out of Indian MCCAPs will occur by 2012³⁷. In Japan, the electrolytic cell technique has been largely phased out since the mid 1980s³⁸.
 - Industry has estimated the total cost for conversion of these MCCAPs at less than 2.400 million Euro, whereas annual turnover for this sector amounts to more than 240.000 million Euro³⁹.
 - Although the European chlor-alkali industry (Eurochlor) has agreed to convert or close down most of the mercury-cell facilities by 2020 through a voluntary agreement, each year, apart from the accounted emissions from this industry, there is an average of 40 tonnes, referred to by industry as “difference-to-balance,” which is lost every year, and no local or EU authority has ever questioned where mercury is going. This lost mercury amounts to more than five times the reported emissions.
 - There are serious concerns that emissions from the sector may be under-reported. A 2006 analysis⁴⁰ drew on several peer reviewed research papers that support the hypothesis that the mercury emissions of chlor-alkali plants in the US and Europe are routinely underreported – not intentionally, but rather due to the design and complexity of the production process, equipment and structures that render any comprehensive measurement of mercury emissions virtually impossible. This conclusion is further supported by measurements and analysis published by US EPA, DG Environment, NRDC, Greenpeace, Oceana, EEB site measurements⁴¹ and others⁴² – a virtual

³⁵ For the full BREF document : http://ec.europa.eu/environment/ippc/brefs/cak_bref_1201.pdf

³⁶ Three company letter to US House of Representatives, Committee of Energy and Commerce, 20 October 2009

³⁷ Central Pollution Control Board, Annexure 1, Section 8, point 12, <http://www.cpcb.nic.in/Charter/status.htm>

³⁸ UNEP, Global Mercury Assessment, Overview of Existing and Future National Actions, including Legislation Relevant to Mercury. December 2002. The chlor-alkali BREF mentioned that some plants in Japan, which largely phased out the

industrial use of mercury following the Minamata incident, were permitted to continue to use mercury cells to produce potassium hydroxide for many years after other uses were discontinued. Even for this use, however, the remaining Japanese plants had all been converted to mercury-free processes by 2002.

³⁹ http://www.zeromercury.org/EU_developments/081218EEB_Report_European_MCCAPsDRAFTfinal.pdf, p. 3,11,12

⁴⁰ “Status Report: Mercury cell chlor-alkali plants in Europe” , http://www.zeromercury.org/EU_developments/Final_Report_CA_31Oct2006.pdf, EEB, October 2006

⁴¹ http://www.zeromercury.org/EU_developments/061110RiskyBusinessFINAL.pdf

⁴² “Petition [before the Administrator, United States Environmental Protection Agency,] for reconsideration of the National

Emission Standard for Hazardous Air Pollutants (NESHAP): Mercury Emissions from Mercury Cell Chlor-Alkali Plants,” 17 February 2004.

European Commission, Annex to the Communication from the Commission to the Council and the European Parliament on Community Strategy Concerning Mercury, *Extended Impact Assessment*, {COM(2005)20 final}.

EMECAP Project Progress Summary and Final Report, European Mercury Emissions from Chlor-Alkali Plants, carried out with the assistance of European Community research funds, DG Research, European Commission, 2006.

consensus among all who have made the effort to better understand chlor-alkali mercury releases.

- Member states have started realising that business as usual in the sector cannot continue: In France, following presentation of the very high emissions of mercury recorded during a monitoring of air and soil sampling exercise outside a mercury chlor-alkali plant, under the EEB campaign, the French Ministry of Environment announced further monitoring with the coordinated participation of industry, the local authorities and the NGOs, and that the agreement between the French industry and government that mercury in this industry can be used until latest 2020, will be revised for potential adoption of an earlier phase out date⁴³. Recently (April 2010) the Ministry announced that the French chlor-alkali plant referred to above, will convert to a mercury free process by 2013⁴⁴. Discussions at French level are still ongoing.

Actions proposed

4. A specific sunset date for all mercury-cell chlor-alkali plants, both sodium – and potassium-based should be set. The EEB has been advocating for 2010 as a phase out date for many years , but recognizes a later date is now necessary due to delays in taking appropriate action.
5. At EU level, the European Commission should come forward with legislation specific to the chlor-alkali industry, including not only a specific sunset date for the mercury-cell chlor-alkali plants, but also minimum requirements, reporting obligations, and mercury emission limit values for the mercury-cell chlor-alkali plants that will choose to operate until the sunset date.

2.2.2. Mercury use in dental amalgam

As discussed in earlier sections, apart from asking the opinion of the EU scientific committees on the environment and health effects of dental amalgam, no other measures have been taken at EU level.

The COWI, Concorde SA 2008 report analysed extensively the issue and concluded that: *'Substitution of dental amalgam is no doubt effective as it would eliminate the total input of mercury to this sector, and thus eliminate in a few decades the adverse impacts of mercury releases resulting from this activity. As the table shows, the cost level - however roughly estimated only - indicate a rather substantial cost for the substitution of dental amalgam with composite fillings, the most widely used alternative today. This should however be consider in perspective of a number of cost elements which have not been possible to quantify within this study. Expected benefits from reduced adverse effects of mercury releases and reduced costs for mercury waste management in all associated flows in society are expected to be major contributions. Both are however complicated to estimate. Current estimates of health benefits per gram mercury reduced are considered very uncertain and imply the risk of serious misinterpretations. The costs of emission reduction of one kg mercury in crematoria is in the same range as the lower estimate of the costs of substitution of dental amalgam.*

Quirindongo M, J Devine, A Leiter and L Greer, *Lost and Found: Missing mercury from chemical plants pollutes air and water*, NRDC Issue Paper, Natural Resources Defense Council, Washington DC, April 2006.

La industria del cloro: contaminación silenciosa – Análisis de los vertidos al agua de las plantas productoras de cloro en España, Greenpeace España, Madrid, Barcelona, October 2008.

Winalski D, S Mayson and J Savitz, *Poison Plants: Chlorine factories are a major global source of mercury*, OCEANA, Washington DC, January 2005.

⁴³ http://www.fne.asso.fr/fr/pollution-au-mercure-fne-tire-le-signal-dalarme.html?cmp_id=33&news_id=314&vID=

⁴⁴ http://www.fne.asso.fr/fr/actualites/communiqués-de-presse-full.html?id=1646&news_id=1646&cmp_id=33

It is clearly indicated that applying high efficiency filters and maintenance requirements is a quite cost effective measure, with a price per kg mercury release reduction of only 1/10 of the costs of reduction the releases from crematoria.

Because of the large quantities of mercury accumulated in the teeth of the population, substitution and "end-of-pipe" measures are, in the short term, not so much possible alternatives; rather both measures are necessary at the same time. Over the longer term, of course, the "end-of pipe" measures would no longer be needed as dental mercury no longer reaches any waste stream in significant quantities.⁴⁵

Furthermore, EEB organised a conference in May 2007 'Dental sector as a source of mercury contamination'. Results of the conference⁴⁶ included the following:

- In the EU, mercury use for dental amalgams is estimated to be more than 90 tonnes, the second biggest use after mercury-cell chlor-alkali plants. Mercury use in the EU is significant in dental applications, most of which appears to eventually be deposited in the environment. Such releases are quite diffuse, and controlling them is costly. Once mercury is released, it may transform into methylmercury, its most toxic form.
- There are various pathways where mercury from dental amalgams may be released and where it can be controlled (dental clinics, waste water, crematoria, cemeteries etc.). Much mercury waste is sent into the solid waste stream, although a good amount goes into the waste water treatment stream including mercury in people's mouths released at home, while a certain amount ends up in sludge waste. Crematoria also release mercury into the atmosphere, although when people are buried it might end up in the soil or ground water.
- Approximately 500 million citizens (50-75% of individuals in the EU) have fillings in their mouths. The average mouth with fillings in the EU seems to contain 3 to 4 grams of mercury. A 'human inventory' of around 1,100 tonnes can be found in people's mouths in the EU, which is huge when one considers it will all end up in the environment.
- Experts estimate that the amount of mercury newly introduced into people's mouths in the EU is between 110 and 150 tonnes annually. However, this estimate does not include the mercury waste carved away by dentists. Yet, three grams per person are still released into the atmosphere by cremation or into the soil by burials every year. The cremation rate in the EU is also increasing by 1% a year.
- On the basis of different assumptions, it is estimated that the annual mercury releases which end up in various environmental outlets are distributed mainly into soil (30 tonnes), the atmosphere (23 tonnes), surface water (14 tonnes) and groundwater (10 tonnes)⁴⁷. In these environmental media the mercury may be expected to continuously circulate in the biosphere, partially methylate, enter the food chain and detrimentally affect wildlife and human health.
- Amalgam separators, although they can recover quite a high percentage of dental amalgam waste, have not proven to be a real solution, since lack of maintenance or bad installation can reduce their efficiency, meaning that there will still be emissions of mercury into waste water through dental clinics. Moreover, as the presentation and report from the Commission made clear, the EU as a whole has a very low occurrence of separator installation in dental clinics, particularly 'retroactive' installation in existing clinics.

⁴⁵ p.220 of COWI, Concorde SA 2008, report for DG Environment.

⁴⁶ http://www.zeromercury.org/EU_developments/Dental_Conference_Report_May07.pdf

⁴⁷ Concorde SA for EEB, 2007 'MERCURY MERCURY IN DENTAL USE:

ENVIRONMENTAL IMPLICATIONS
FOR THE EUROPEAN UNION'

http://www.zeromercury.org/EU_developments/Maxson%20Dental%2014May2007%20-%20A5colour.pdf

- Emissions from the crematoria sector increase both localised and national mercury levels through emissions and deposition. All mercury in teeth evaporates during cremation, with no traces of mercury found in the remaining ashes. Installation of filters in crematoria can be quite costly, and even then the abatement technology only removes 95% of mercury leaving the chimneys. In addition, mercury abatement is a form of end-of-pipe control and it would therefore be preferable for mercury to be controlled farther up the process chain.
- Mercury-free alternatives for dentistry exist, including composites, (resin-free) glass ionomer cements, ceramics etc. Some concerns were expressed about the potentially hazardous content of these alternatives (e.g. composites containing bisphenol-A), but hazard-free options are also available on the market. Dentists present at the conference confirmed practising amalgam-free dentistry, with the ability to restore all damaged teeth without amalgams.
- National strategies and/or advisories have been in place against the use of mercury in dental fillings (e.g. in Sweden, Denmark, Germany, Austria, France, Finland). Introduction of financial instruments (e.g. health insurance covering mercury-free amalgams only), practitioners' guidelines and awareness raising on the issue in different countries appears to have made a difference, all of which should be continued in light of the push to phase out the use of mercury in the dental sector and to stimulate a sustainable long-term solution.
- The price of an amalgam might be very low for the consumer if we compare it to the cost of alternatives; however, dental amalgams would be one of the most expensive materials if related environmental costs and (chronic) health effects caused by mercury were also taken into account. The real environmental and health costs should be included in the actual cost of the amalgams.
- Patients in Europe are not always informed about the different choices they have regarding dental fillings and what the effects or risks of one or the other material could be for their health and the environment. Some participants testified that their health deteriorated because of the use of dental amalgams and improved after their removal and detoxification therapy.
- There has been evidence that dental assistants have been seriously affected by the use of mercury while preparing dental amalgams, many reporting having children born with neurological problems. Studies presented from Norway showed dental assistants to have neurological and psychosomatic symptoms, problems with concentration, fatigue and sleep disturbance.
- There was general support for the idea that mercury use in dental amalgams can indeed be decreased or phased out in the coming years, since adequate alternatives are already available and research could provide for a wider range of even better performing materials.

In addition in March 2006, the European Parliament called on the Commission to bring forward a proposal to restrict the use of mercury in dental amalgam by the end of 2007.⁴⁸

In terms of following up with the outcomes of the EU Scientific committees' opinions, since new information has been provided through the COWI, Concorde SA 2008 report, in case further information is potentially needed, action should be taken that this is collected as soon as possible.

Action proposed

6. Phase out the use of dental amalgam. Justified, time limited exemptions could be considered.

⁴⁸ <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+TA+P6-TA-2006-0078+0+DOC+PDF+V0//EN>

2.2.3. Mercury use in Porosimetry - Pycnometry

Important information has been gathered on this issue from the COWI, Concorde SA 2008 report. This is one of the areas where policy recommendations have been put forward by the consultants. *Mercury consumption for porosimetry is substantially larger than previously expected and may be among the largest remaining uses in the EU today. Although mercury usage takes place in laboratory conditions, which tend to ensure a certain containment of the mercury, direct releases to the environment are expected, however, and due to the substantial amounts of mercury involved, the generated mercury-containing waste contributes significantly to the mercury input to waste in the EU. Alternatives to mercury porosimetry are commercially available today, though with some limitations, but unless mercury use for porosimetry is regulated, it is likely that the further development and implementation of alternatives will be slow. These preliminary findings indicate that it might be useful to investigate this mercury usage in more detail in future work, and that regulation may be warranted in the longer perspective. Also it appears that at least for some uses/types of instruments mercury use can be phased out.*

To that end and from the discussions during the recent EEB,HCWH, ZMWG conference on 'EU Mercury phase out in Measuring and Control Equipment', October 2009⁴⁹, we would propose that steps should be taken to ensure that 100% of the mercury used is recycled, and to phase out mercury use in porosimetry - pycnometry where possible, creating incentives for the development of mercury free alternatives for the remaining uses. .

Action proposed

7. Take measures to ensure 100% mercury used in porosimetry - pycnometry is recycled.
8. Phase out the use of mercury in porosimetry - pycnometry, with justified, time limited exemptions.

2.2.4 Mercury use in Polyurethanes

As on the above issue, important information has been gathered on mercury use in polyurethane elastomers from the COWI, Concorde SA 2008 report, which concludes that *'Proposing a phase-out of the use of mercury in polyurethane elastomers over a 3-5 year period, would appear to be preferable to other options, with overall positive impacts on the economy and society.'*

We would further want to underline the consultants' comment that *the global impact of such a phase-out will be significant. On the one hand, other countries have shown a willingness to follow the EU lead toward better mercury management and environmental responsibility. On the other hand, industry has little interest in selling a different product within the EU from that marketed outside the EU, which may not only be commercially inefficient, but also leaves industry open to criticism of applying different standards to different markets.'*

Action proposed

9. Phase out the use of mercury in polyurethane elastomers.

⁴⁹ http://www.zeromercury.org/EU_developments/091104EEB-HCWH-Meas-Dev-Conf-Rep.pdf

2.2.5 Mercury use in batteries

The current regulatory approach for restricting mercury use in batteries is outdated, and is contributing to confusion regarding the tracking and use of mercury in the battery production sector. While mercury use has been eliminated for standard primary batteries, European law still allows up to 2% mercury content in button cells, and much more than that for mercury oxide batteries used in unspecified “medical equipment” or “emergency” purposes. Based on the findings in the most recent COWI, Concorde SA 2008 these allowances for mercury use are not necessary in most cases, and may facilitate continued use of mercury in battery production both for EU consumption and export purposes.

First and foremost, mercury use in button cell production is no longer required, since a growing number of manufacturers are now producing mercury free versions of all various button cell types. Table 2-17 of the COWI Concorde report lists some of those manufacturers. Similar and additional information can be found in a recent report prepared by the State of Maine in the USA.⁵⁰ Indeed, Maine and Connecticut will ban the sale of mercury containing button cell batteries from mid 2011⁵¹, consistent with the US battery manufacturer association’s voluntary commitment to produce mercury free button cells by 2011.

Many of the same manufacturers operate in both the EU and USA. Therefore, it is not surprising EU manufacturers like Sony are developing mercury-free button cells and making similar commitments and policy recommendations in the EU⁵². The revisions to the EU mercury strategy should embrace this technology advancement over the last 10 years and phase out mercury use in EU button cell production as soon as possible.

Simultaneously, the EU must carefully consider the remaining exemptions in the battery directive. The exemption for “medical equipment” is vague and overly broad, particularly if it includes hearing aid applications, since mercury free button cells are available for this application. Military applications also appear to be overly broad and ill-specified. As indicated in the COWI Concorde report, greater specificity and oversight of legitimate exemptions are desperately needed to avoid abuse of these provisions and ensure appropriate tracking of this sector.

Lastly, the battery sector exemplifies why a ban on exports of mercury products restricted in the EU is warranted, as discussed further elsewhere in these comments. Without such a ban, EU mercury use in this sector could continue, particularly for mercury oxide batteries containing very high levels of mercury. These batteries will frequently be exported to the developing world where the capability for safe management during use and disposal is seriously lacking. The EU should not be contributing to the global mercury pollution problem in this way.

Moreover, without the product export ban, the EU becomes a potential transit route for the global distribution of outdated mercury products, thereby impairing the EU’s ability to track mercury consumption in the EU and the effectiveness of its regulatory measures, as the COWI Concorde report vividly reveals.

Action proposed

10. Ban the production and sale of mercury containing button cells by revising as soon as possible the EU batteries directive.

⁵⁰ <http://www.maine.gov/dep/rwm/publications/legislativereports/pdf/buttonbatteriesreportjan09.pdf>.

⁵¹ www.maine.gov/dep/rwm/publications/legislativereports/pdf/buttonbatteriesreportjan09.doc

⁵² Personal communication with SONY, April 2010.

11. The remaining exemptions in the battery directive must be re-examined because they too are outdated, lack specificity, and may be subject to significant abuse.

2.2.6 Mercury use in light sources

Mercury is a necessary element that is added to lamps to form a vapour which produces light when current is passed through it under a vacuum. Mercury-containing lamps are already widely used, yet sometimes consumers do not realise that they contain mercury. In the coming years millions of these lamps are expected to flood the EU consumer market and be used in homes, businesses and institutions, since a ban is planned on the incandescent lamp which uses more energy.

Mercury in light sources is regulated currently under the Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive 2002/95/EC, where maximum limits of mercury have been set for certain lamp categories (e.g. for compact fluorescent lamps 5 mg Hg per lamp). The annex of this directive is currently under review and, to our knowledge, a new EC proposal has been circulated to Member States and the European parliament, which proposes new lower limits for compact and linear fluorescent lamps, and has added new lamp categories where maximum mercury content limits should be respected. Nevertheless, an unnecessary transition period has been given for the application of these maximum contents, which will prolong possibility for relatively higher mercury exposure to consumers.

The EEB considers that although progress appears to have been made, the maximum mercury content limits could have been stricter, since generally at least two manufacturers per lamp type can reach the lower limits proposed by EEB. Details on our proposals can be found at

- [NGO's Comments on the classification of CFLs and their mercury content \(\(RoHS Annex review\), 7 October 2009](#)
- [Letter to Member States](#)
[Summary table](#)
[NGOs Consolidated comments on RoHS review, concerning mercury in lamps](#)
[Annexes](#)
31 August 2009

Action proposed

12. Restrict further the mercury use in light sources for certain categories.

13. Propose maximum limits for lamp categories which currently have a blanket exemption.

2.2.7 Mercury use in measuring and control devices in healthcare and professional uses

As discussed under the assessment section - measures to control and phase out the use of mercury in measuring and control devices has already taken place under Action 7 of the 2005 EU Mercury strategy and the adopted Directive 2007/51/EC relating to restrictions on the marketing of certain measuring devices containing mercury, which restricted the use of mercury in fever thermometers, and in other measuring devices for consumer use.

With respect to the use of mercury in sphygmomanometers in healthcare - further information was provided through the COWI, Concorde SA 2008 report. In October 2009, the EU Scientific

Committee on Emerging and Newly Identified Health Risks (SCENIHR) published their Opinion on: Mercury Sphygmomanometers in Healthcare and the Feasibility of Alternatives.

The report finds that “mercury-free blood pressure measuring devices (when clinically validated) are generally reliable substitutes for mercury-containing sphygmomanometers in routine clinical practice.” It also concludes that “there is no evidence of adverse effects on patients' health in clinical settings due to the replacement of mercury containing sphygmomanometers by validated mercury-free alternatives.” The report further finds that mercury-based sphygmomanometers are “not essential” for calibration. Therefore, due to the acute toxic hazard to health care workers and chronic hazard to society, these devices have no place in clinical care. They may only be needed for validation of sphygmomanometers in specialised centers and long term epidemiological studies.

These conclusions were in line with the NGOs requests to phase out the use of mercury in sphygmomanometers in healthcare, as they were also discussed and expressed at the EEB/HCWH/ZMWG 2009 conference ‘*EU mercury phase out in measuring and control equipment*’⁵³. Further to the above, and in the medium term the EU should invest the relatively small amount of resources necessary to develop a viable non-mercury reference standard for blood pressure measurement that can serve as a new mercury-free “gold” standard.

As explained before, following the 2007/51/EC directive's requirements the European Commission carried out a review of the availability of reliable safer alternatives that are technically and economically feasible for mercury-containing sphygmomanometers and other measuring devices in healthcare and in other professional and industrial uses. On the basis of this review, and on the basis of the information that was collected as above, the EC requested the European Chemicals Agency (ECHA), to make a proposal under the REACH⁵⁴ 'Restriction' process, and requirements of Art. 69. ECHA is expected to make the relevant proposal and eventually propose a restriction of the use of mercury sphygmomanometers in healthcare, in June 2010. Process under ECHA is on-going.

Action proposed

- 14.** Ensure a Rapid Phase-out of Clinical Mercury-Sphygmomanometers sales via the REACH restriction route.
- 15.** Take action to promote Development and Validation of an Alternative Reference Standard.

2.2.8 Mercury use in lighthouses

Evidence in the use and potential impacts of mercury in lighthouses has been extensively discussed at the COWI, Concorde SA report.

The report concludes '*It would be consistent with the objectives of the regulation to include mercury that is no longer used in light houses in an amendment to the 1102/2008 regulation. The relatively large amounts of mercury stored in each light house makes it feasible to send the mercury directly for safe storage.*'

This proposal should further be pursued and included as an action to the new EU mercury strategy.

⁵³ http://www.zeromercury.org/EU_developments/090618_Meas_Dev_conference.html

⁵⁴ Regulation on Registration, Evaluation, Authorisation and Restriction of Chemical substances, EC 1907/2006, http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm

Action proposed

16. Phase out the use of mercury in new light houses.
17. Request obligatory safe disposal of mercury used in existing lighthouses, amending accordingly the regulation 1102/2008/EC an EU export ban and safe storage of mercury.

2.2.8 Mercury in vaccines

The EEB together with other NGOs had discussed the need to investigate further the use of mercury in vaccines in their 2005 publication⁵⁵ - 'Zero Mercury: Key issues and policy recommendations for the EU Strategy on Mercury'. More information can be found in this publication.

Mercury use as a preservative in vaccines, called thimerosal or thiomersal, were not addressed in the 2005 EU Mercury Strategy; however, the Council Conclusions (June 2005) on the Commission's Mercury Strategy highlighted the need to address vaccines⁵⁶.

No relevant action has taken place in the EU to our knowledge until now and since 2005. Our proposals for action since 2005 are therefore still valid. Note that the kinds of vaccines covered should not only include childhood disease vaccines but seasonal flu vaccines given to women before and during pregnancy and during breastfeeding.

Action proposed

18. An expert assessment should be undertaken to determine the extent to which mercury can be appropriately eliminated from vaccines to better protect public health.
19. The Commission should undertake a review of vaccines, to ensure that thimerosal-containing vaccines are not in use in Europe, where alternatives are available. An agreement with manufactures should be sought to eliminate the use of thimerosal in vaccines where not necessary. Wherever needed, vaccines should be labelled to declare mercury contents. Furthermore, the EMEA should publish a comprehensive list of all vaccines licensed in Europe and their thimerosal content, as the FDA does in the United States. Further, the Commission should issue guidelines calling on the EMEA and other health organizations to work with manufacturers to reduce and/or eliminate mercury in vaccines. To that end, priority should be given on research and development of safe, mercury-free, multi-dose vaccines.

2.3. Reduce international trade in mercury

According to the regulation's article 8, *Article 8*, The Commission shall organise an exchange of information [...] by 1 January 2010, to examine in particular the need for:

- a. *extending the export ban to other mercury compounds, mixtures with a lower mercury content and products containing mercury, in particular thermometers, barometers and sphygmomanometers;*
- b. *an import ban of metallic mercury, mercury compounds and products containing mercury;*
- c. *extending the storage obligation to metallic mercury from other sources;*
- d. *time limits concerning temporary storage of metallic mercury.*

⁵⁵ http://www.zeromercury.org/Zero_Mercury_Policy_Paper_EN.pdf

⁵⁶ Council Conclusions on the Community strategy concerning mercury, 2670th Environment Council meeting, Luxembourg, 24 June 2005.

e. *This exchange of information shall also consider the research on safe disposal options.*

Until now, the exchange of information organised in November 2009 was concerning only storage and disposal options as well as progress in research related to the solidification/stabilisation of metallic mercury. The EU consultation meeting on the 18 June 2010, on the review of the EU mercury strategy covered some of the remaining issues. No in depth discussions were held though on the issues since the meeting was on all areas concerning mercury.

The elements of article 8 above have not been yet fully examined.

The EEB has already been discussing and urging that action should be taken on these issues.

2.3.1. The export ban should include mercury compounds

- Compounds are among the world's highest-volume uses of mercury,
- Other compounds such as mercuric chloride and other organo-mercury compounds, are still made in the EU. Various trade names can be used for these products which conceal their mercury content. Many of these compounds may still be made in the EU and exported for mercury recovery, with an economic incentive to do so.
- During earlier discussions the European Parliament had already requested for extended export ban scope to include mercury compounds (with mercury content more than 5% w/w), cinnabar, and mercury containing products which are banned in the EU.
- Mercury compounds are still commonly used in many countries in cosmetics, batteries, pharmaceuticals, paints and biocides, according to CADTSC (2001). The compounds in most frequent use include mercury oxide, mercury chloride, and phenylmercuric acetate.⁵⁷
- In fact, the use of certain compounds, which MAYASA no longer produces in much volume, has long been promoted by a range of trade names and other descriptions that often appear to have no relation to mercury.⁷
- According to the US EPA (1999), the only major mercury compounds still imported by the US for use in products are organo-mercury compounds. In a recent year, U.S. imports of organo-mercury compounds were said to be 37 tonnes.⁷
- Nevertheless, the geographic locations of major mercury dealers are generally evident from the trade data – unless they convert the mercury to a compound (such as mercuric chloride) to better disguise the movement of raw mercury.⁵⁸
- Pesticides containing mercury compounds including mercuric oxide, mercurous chloride (calomel): other inorganic mercury compounds: alkyl mercury compounds: and alkoxyalkyl and aryl mercury compounds are banned or severely restricted for use in the EU under 79/117/EEC (1991,1992)
- The U.S. Environmental Protection Agency identified additional mercury compounds that can readily be converted into elemental mercury outside of the EU, thereby undermining the elemental mercury export ban.⁵⁹

Mercury Chloride

- It was formerly used in insecticides, batteries; as an antiseptic, disinfectant, preservative, in metallurgy and as a photographic fixative.⁶⁰

⁵⁷ Mercury flows in Europe and the world: The impact of decommissioned chlor-alkali plants prepared for DG Environment by Concorde East/West Sprl (February 2004), p.50

⁵⁸ Mercury flows in Europe and the world: The impact of decommissioned chlor-alkali plants prepared for DG Environment by Concorde East/West Sprl (February 2004), p.43

⁵⁹ <http://www.epa.gov/hq/pdfs/mercury-rpt-to-congress.pdf>.

⁶⁰ [http://en.wikipedia.org/wiki/Mercury\(II\)_chloride](http://en.wikipedia.org/wiki/Mercury(II)_chloride)

Phenylmercuric acetate

- Used in general, in consumer products, building materials or furnishings that contribute to indoor air pollution and in pesticide products.⁶¹

Organo-mercury compounds

- Important organomercury compounds are the methylmercury cations, CH_3Hg^+ ; ethylmercury cations, $\text{C}_2\text{H}_5\text{Hg}^+$; dimethylmercury, $(\text{CH}_3)_2\text{Hg}$ and thiomersal, $\text{C}_9\text{H}_9\text{HgNaO}_2\text{S}$. Organomercury compounds, and dimethylmercury in particular, are notoriously toxic and find use as antifungal agents and insecticides.⁶²
- Thiomersal or thimerosal (known to many of us as “Merthiolate” in past decades) is a preservative used in a number of biological and drug products including some vaccines. Thimerosal is approximately 50% mercury by weight, in the organic form of ethylmercury.⁶³
- Dimethylmercury is most often used in toxicology experiments as a fixed point of reference due to its extreme toxicity. It has also been used to calibrate NMR (Nuclear Magnetic Resonance) instruments for detection of mercury, although less toxic mercury salts are preferred.⁶⁴

Summing up:

- Different trade names can be used for products which do not reveal their mercury content.
- Many of these compounds may still be manufactured in the EU and exported for mercury recovery.
- It would be economically beneficial to manufacture mercury chloride and oxide and then recover the mercury after export.⁶⁵

2.3.2 Mercury-containing products, which are subject to EU use and marketing restrictions should also be covered by the ban.

- Mercury-containing products make a major contribution to mercury spills, release at disposal, and hence both direct health risks and environmental contamination
- Cost-effective mercury-free alternatives to virtually all mercury-containing products are available
- The EU must avoid double standards. Mercury-containing products which are banned in the EU should not be exported to countries where they may not yet be regulated, and where their disposal is often poorly handled
- In March 2006, the European Parliament called for the export ban to include mercury compounds and products containing mercury which are, or will soon be, subject to EU use and marketing restrictions⁶⁶.
- During earlier discussions the European Parliament had already requested for extended export ban scope to include mercury compounds (with mercury content more than 5% w/w), cinnabar, and mercury containing products which are banned in the EU

2.3.3 Restricting imports of mercury and mercury compounds

⁶¹ http://www.scorecard.org/chemical-profiles/consumer-products.tcl?edf_substance_id=62%2d38%2d4

⁶² http://en.wikipedia.org/wiki/Organomercury_chemistry

⁶³ <http://en.wikipedia.org/wiki/Thiomersal>

⁶⁴ <http://en.wikipedia.org/wiki/Dimethylmercury>

⁶⁵ P Maxson personal communication with B Lawrence, President, Bethlehem Apparatus mercury recyclers, 2005

⁶⁶ <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P6-TA-2007-0267&language=EN&ring=A6-2007-0227>

Imports of mercury and mercury compounds should be restricted, with the exemption of imports of mercury destined for final storage or disposal. Member States importing mercury or mercury compounds through this exemption process must develop a licensing system for ensuring the mercury will be safely managed and eventually disposed of, and must report relevant data requested to the Commission to track the EU movement of elemental mercury and specified mercury compounds. The licensing system should also include periodic inspections of recyclers and traders of elemental mercury and the specified mercury compounds. Minimum licensing and reporting requirements will also need to be developed to ensure valid and consistent trade data are provided among Member States.

Such measures will be needed to:

- ensure EU mercury supplies are consistent with EU demand, mandatory storage obligations, and policies encouraging mercury recovery from waste and products
- better protect EU waste/mercury recyclers – preventing low-cost mercury from flooding the EU market
- The EU could impose highly-targeted import prohibitions where it is necessary to implement important EU policies⁶⁷
- An import ban of metallic mercury, cinnabar and mercury compounds (with mercury content more than 5% w/w) was also proposed by 1 December 2010 by the European parliament during earlier discussions.

Actions proposed

20. Implement fully regulation 1102/2008/EC (Mercury export ban); examine in further depth and consider all available information

- a. *extend the export ban to include mercury compounds and those mercury-containing products subject to EU use and marketing restrictions.*
- b. *restrict imports of mercury and mercury compounds into the EU for purposes other than sequestration (i.e. final storage or disposal).*
- c. *Establish an effective trade tracking and licensing mechanism for tracking imports and exports, and enforcing the trade restrictions.*

2.4.Reduce atmospheric emissions of mercury;

2.4.1 Atmospheric emissions from industrial sectors covered by the IPPC directive

As discussed in the earlier assessment section, no specific action has been implemented focusing on reduction of atmospheric emissions of mercury. Some reduction in emissions from other pollutants such as NO_x, SO₂ and dust, even if achieved, has not been analysed in detailed to show whether some co-benefit effect in mercury emissions reduction has been achieved. Therefore most of our earlier 2005 comments are still valid⁶⁸.

⁶⁷ With respect to the purely legal question of confronting trade obstacles, we note the very recent promulgation of Council Regulation No. 1236/2005, restricting trade in products used for torture and other inhuman punishment. We specifically note the import prohibition of equipment that can only be used for capital punishment, torture, or other similar purposes in Article 4 of this regulation. This import prohibition suggests the EU can undertake very targeted import bans where it is necessary to implement important EU policies.

⁶⁸ http://www.zeromercury.org/Zero_Mercury_Policy_Paper_EN.pdf

Emissions from the following sectors are relevant in terms of mercury emissions

- Large combustion plants
- Smelting- non ferrous metals operations
- Cement industry
- Waste incinerators
- Chloro – alkali industry
- Other industries under IPPC

Mercury emissions from combustion of fuels, in particular **coal** are the largest source of combustion-related emissions. Implementation of existing instruments such as Directive 2001/80/EC to reduce sulphur dioxide will bring some reductions to mercury emissions. However, elemental mercury in particular (with a lifetime in the atmosphere of up to one year), which can travel globally, will still be released to the environment, thereby contributing to global pollution.

Sector	2005 emissions tonnes	% of 2005 emission
Fossil fuel combustion for power and heating	878	45.6
Metal production (ferrous and non-ferrous excluding gold)	200	10.4
Large scale gold production	111	5.8
Artisanal and small-scale gold production	350	18.2
Cement production	189	9.8
Chlor-alkali industry	47	2.4
Waste incineration , waste and other	125	6.5
Dental amalgam (cremation)	26	1.3
TOTAL	1930	100

Source: UNEP 2008 report 'The Global Atmospheric Mercury assessment: sources emissions and transport' p. 17

Beyond emission limit values, it should be considered that there is no direct relation between concentration rates of emission (as represented by ELVs) and the mass of emissions (total amount emitted). Thus, while coal-fired plants would be subject to controls on their rates of mercury emissions under ELVs, increased coal-fired production in the face of increased gas prices and concerns about the security of gas supplies (as is currently happening) could still lead to an increasing mass of emissions. ELVs also take no direct account of the concentration of coal-fired activity in any particular area – increased economic activity could comply with ELVs while still leading to pollution hotspots.

The co-benefit from the reductions of other pollutants is not enough. Reduction at source of mercury emissions could be achieved when technologies to control other pollutants are used, but this may not exceed 50% of mercury removal capability. Combinations of such technologies could reach higher percentages of mercury removal, but such multiple measures are not widely used.

Methods for preventing mercury pollution before coal is even burned are available, and given that BAT must lead towards “measures designed to prevent emissions and the impact on the environment as a whole”, pre-combustion techniques should be promoted within the strategy to control mercury emissions to the atmosphere. The use of activated carbon injection (ACI),

in which a powdered activated carbon (PAC) sorbent is injected into the flue gas should also be further promoted.

Most of the industries contributing to mercury emissions to air fall within the scope of the IPPC directive and relevant BAT reference documents have been developed. However, although the large majority of the Member States take into account the developed BREFs, this is not systematically addressed in all of the relevant legislation and as a result, “remarkable variations in implementation” have been noted. NGOs are concerned that mercury emissions to air from at least three important sources – **the chlor-alkali industry, the cement industry and secondary steel production** – are underestimated.

Regarding the **chlor-alkali industry**, as discussed in separate section, given that the magnitude of emissions is likely to be much greater than currently estimated, it should be a high priority to phase out reliance on mercury at these plants, in accordance with established and recommended deadlines.

Monitoring of mercury emissions from all relevant industries and good record-keeping are necessary. Technologies preventing the use of mercury and eventually reducing mercury emissions are available and should be adopted. The respective BREFs should be revised and/or separate legislative instruments should be set to consider mercury emissions control, including mercury-free fuel when possible.

Action proposed

- 21.** Measures designed to prevent emissions of mercury such as mass specific emissions limit values from combustion of fuels plants and mainly coal and other relevant activities under the Integration Pollution Prevention and Control (IPPC) Directive or the forthcoming Industrial Emissions Directive (IED), other existing legislation or a separate legislative instrument should be introduced and the Commission should take action as soon as possible.
- 22.** National mass emission limits as well as local air quality limits for mercury should be set under relevant existing or a separate legislative instrument.
- 23.** In addition to mercury emission control technologies, the use of low-mercury coal, coal cleaning, selection of coal for low-mercury emissions, or switching to a cleaner fuel should be implemented over time. Such issues should be considered when revising the respective BREFs and for research and development if necessary.
- 24.** In light of the major contribution of the industrial sector to mercury air emissions, it is necessary to set mass specific Emission Limit Values in line with Best Available Techniques Associated Emission Level (BAT AEL) for mercury, as minimum action, from all relevant activities – including the chlor-alkali sector, cement manufacturing, and secondary steel production.
- 25.** A sunset date should be set for the mercury use in the chlorine sector.
- 26.** Under the review of the BREF on chlor-alkali, the mercury-cell technique shall not be presented under the BAT chapter (Chapter 5) but only conversion to the Membrane process should. For the remaining life of Mercury cell chlor-alkali plants (MCCAP) a maximum Best Achievable Emission Level should be referred to in the BREF as at the maximum 0,2- 0,5 g Hg/tonne of Cl₂ production capacity, as a clear guideline for permit writers . Following this, there is a need for more enforcement and follow ups of the chlor alkali plants to ensure they implement the BREF.

27. All BREFs for relevant industries should include measures to prevent mercury emissions and specific BAT AEL for mercury.
28. The role of the BREFs in the IPPC/IED directive should further be strengthened.

2.4.2 Atmospheric emissions from small combustion plants

A special study concerning mercury emissions from small combustion plants was carried out under the 2005 EU Mercury strategy⁶⁹. The inventory estimates that small combustion installation (SCI) sources account for 16% of total European emissions. This compares to an estimation of 25% in earlier studies. Regardless of this difference and the apparently high level of uncertainty within the inventory, mercury emissions from SCIs remain a large component of the EU inventory, and a source for which controls may be available. Different scenarios are identified and recommendations are made respectively. None of these has currently been implemented and the report has not been discussed further.

Actions proposed

29. The Large Combustion Plants Directive (2001/80/EC), the IPPC (merged in the IED Directives) should be extended to cover mercury emissions from combustion of fuels from installations with a thermal input of 20MW and above as well as residential coal combustion. A complementary legislative instrument could be developed.
30. Rather than relying on the incidental capture of mercury by pollution control technologies designed to capture other pollutants, it is imperative that binding measures on prevention such as Emission Limit Values be established, as in the case of waste incinerators, to achieve consistently high reductions in mercury emissions. In this way, pollution control measures for mercury can be integrated into retrofits to meet ELVs for SO₂, PM, and NO_x by 2008 under the LCP Directive and BAT in the IPPC BREF.
31. Recommendations of the 2005 study should be implemented

2.4.3 Atmospheric Emissions from crematoria

Emissions from crematoria are not covered by Community law, but are regulated in several Member States, and are also the subject of OSPAR Recommendation 2003/4. Although mercury emissions from crematoria was discussed at the Extended Impact Assessment carried out for the 2005 EU mercury strategy, no actions were proposed and implemented at EU level.

Our comments from our 2005 publication are still relevant⁷⁰.

It has been estimated that there are between 2 and 3.5 tonnes of mercury released annually from crematoria. In the UK crematoria are responsible for 16% of mercury emissions and, without controls, will be the largest source of mercury pollution by 2020. Legislation on crematoria is already in place in Denmark, the Netherlands, Germany and the UK and should be compared and evaluated as part of this investigation. The relevant OSPAR recommendation covers only 12 of the 25 EU Member States and no sanctions are foreseen in cases of non-implementation⁷¹. Reports on emissions from crematoria, from the OSPAR parties were due by September 2005 but we have not been able to find any relevant reports.

⁶⁹ http://ec.europa.eu/environment/chemicals/mercury/pdf/sci_final_report.pdf

⁷⁰ http://www.zeromercury.org/Zero_Mercury_Policy_Paper_EN.pdf, p.59

⁷¹ Belgium, Denmark, Germany, Finland, France, Ireland, Iceland, Luxembourg, Netherlands, Norway, Portugal, Spain,

Special measures have been taken with respect to mercury emissions from crematoria in the UK⁷². Best Available technique measures appear to be implemented. Furthermore industry itself created the Crematoria Abatement Mercury Emissions Organisation (CAMEO) scheme, a crematoria abatement system scheme⁷³. This is a burden-sharing scheme where all members pay per cremation, then receive payment per abatement. This scheme also enabled a phased approach which was not in government recommendations with targets: by 2008, 10% of cremations abated, by 2010, 20% and by 2012, 50%.

Further to that mercury emissions from crematoria are discussed in the COWI, Concorde SA 2008 report which concludes that *'the costs of emission reduction of one kg mercury in crematoria is in the same range as the lower estimate of the costs of substitution of dental amalgam. It is clearly indicated that applying high efficiency filters and maintenance requirements is a quite cost effective measure, with a price per kg mercury release reduction of only 1/10 of the costs of reduction the releases from crematoria. Because of the large quantities of mercury accumulated in the teeth of the population, substitution and "end-of-pipe" measures are, in the short term, not so much possible alternatives; rather both measures are necessary at the same time. Over the longer term, of course, the "end-of-pipe" measures would no longer be needed as dental mercury no longer reaches any waste stream in significant quantities.'*

Action proposed

32. Mercury emissions from crematoria should be further investigated, including relevant technologies or other effective approaches, for eventual control at EU level. Emission limit values for this source should be proposed by the European Commission as soon as possible. Crematoria should be included in the scope of IED (Annex I) so that BAT in relation to mercury emissions prevention/control get applied. New crematoria should be subject to more stringent requirements.

2.5. Address mercury-containing waste and remediation of contaminated sites;

2.5.1 Mercury containing-waste

Mercury containing-waste are generally discussed by the COWI, Concorde SA 2008 (p.192) report; separate collection rates are rather low resulting in secondary emissions from landfills and waste incinerators. To that end several recommendations are provided and should be considered for the new EU Mercury strategy.

Action proposed

33. The EC should take measures to further raise awareness and increase knowledge on the fact that certain products contain mercury, to ensure that for those products which relevant law is in place, these are collected separately and safely (e.g. lamps, batteries). Better labeling of products containing mercury will also facilitate separate collection.

34. For products/waste the separate safe collection of which is not explicitly requested by law e.g. for mercury thermometers, additional measures need to be taken thereof.

Sweden, Switzerland, United Kingdom, and European Union, <http://www.ospar.org/fr/html/cp/welcome.html>

⁷² http://www.zeromercury.org/EU_developments/Dental_Conference_Report_May07.pdf

⁷³ <http://www.fbca.org.uk/cameolink.asp>

Considering the relevant emissions caused, special attention is needed on dental amalgam waste.

Dental amalgam waste

A significant proportion of mercury release into the environment still comes from European dental clinics in the form of waste or directly into the waste water system.⁷⁴

As discussed earlier on under the assessment of Action 4 of the 2005 EU Mercury Strategy, when looking at the contribution of mercury pollution from mercury waste from dental clinics the EC report shows that many if not all Member states may be in breach of the requirements of the directives on waste as discussed earlier. Nevertheless no further measures have been taken from the Commission.

Transposition of EU legislation to the Member State level, not to mention enforcement, has not been consistent. In 2004 the Commission notified the UK that amalgam filters, as a minimum, are necessary to comply with Article 4 of the Waste Framework Directive. This followed an investigation that “revealed weaknesses in the UK's implementation of the Waste Framework and Hazardous Waste Directives in relation to this type of waste,” and in which the Commission discovered that dental amalgam was not being treated as a hazardous waste in the UK, but rather released directly into the environment by most dental clinics. The Commission's Mercury Strategy consultation document indicated that many other Member States were similarly lax in addressing the collection and disposal of amalgam waste at dental practices⁷⁵

Dental amalgam waste were also discussed by the COWI, Concorde SA 2008 study.

For the time being, the EC appears to rather be postponing the solution of the problem by mentioning that it will be followed up under the EU water regulations.

Following above comments and recommendations from the 2008 study we would propose the following actions:

Action proposed

- 35.** Those EU Member States which currently lack legislative measures for amalgam separators requirements should provide a timetable for doing so to the Commission in the short term. Those failing to provide this timetable should be identified as priorities for follow-up administrative action by Commission staff.
- 36.** Introduce obligatory measures ensuring that highly efficient amalgam separators are installed in dental clinics. More rigorous installation and monitoring as regards separation, the introduction of devices in the wastewater system of dental offices, good record-keeping and devices that meet a high standard would be needed.
- 37.** In addition, the Commission should ensure that mercury-laden pipes and plumbing fixtures (i.e. nearly all wastewater systems serving dental practices) are cleaned and/or replaced since they have long accumulated mercury wastes and constitute an ongoing source of mercury release. Other dental-related activities should include: ensuring historic supplies of elemental mercury currently stored at dental offices are appropriately managed, and ensuring that mercury-laden solid wastes from dental offices are handled as hazardous waste, in accordance with law, so that they are removed from the economic cycle rather than improperly disposed of, or combusted in medical or municipal waste incinerators.

⁷⁴ Dental sector as a source of mercury contamination, European Environmental Bureau, May 2007, page 7

⁷⁵ http://www.zeromercury.org/EU_developments/Maxson%20Dental%2014May2007%20-%20A5colour.pdf

2.5.2 Remediation of mercury-contaminated sites

No relevant action was proposed from the 2005 EU Mercury strategy. Once more the information provided in the COWI, Concorde SA 2008 study should be considered. Some of our concerns could be considered as covered by the fact that Directive 2006/21/EC on the management of waste from extractive industries, requires Member States to draw up an inventory of closed, including abandoned, waste facilities, by 1 May 2012 (article 20). Nevertheless our 2005 comments are still relevant⁷⁶.

Action proposed

38. Contaminated sites (former mining sites and others) should be identified and classified according to the degree of contamination and urgency of remediation.
39. The contribution of mercury emissions from contaminated sites to the overall emissions should be calculated.
40. Standards and methodologies should be developed and agreed upon on a European-wide basis and harmonised with those under development in other parts of the world.
41. Harmonised and standardised protocols for estimation of emissions should also be considered in order to obtain comparable data.
42. Integrated tools for the remediation of mercury-contaminated sites should be developed.
43. Mixed exposure of humans and wildlife to inorganic mercury and organomercury (MeHg) in mercury polluted sites should further be addressed and studied, due to possible combined effects.
44. Areas contaminated by mercury (former mining sites and others) need to be further restored and brought to a reasonable condition.

2.6. Increase knowledge through awareness-raising and scientific information exchange;

Gaps in knowledge on the mercury problem and its possible solutions can be filled by further research, development and pilot projects.

The 7th Research Framework Programme or other EU programmes should promote projects which contribute to filling in those gaps which have been identified by this present document, EU studies - COWI, Concorde SA 2008, and other.

Consumers are not well informed about the hazardous content of products they use, and as a result may dispose them inadequately increasing the risk for pollution and further exposure.

Special attention is needed in separate collection and treatment of mercury-containing waste. In the area of waste electrical and electronic equipment, although relevant legislation is in place since 2003 - collection rates are generally low in particular for energy efficient mercury-containing lamps⁷⁷.

⁷⁶ http://www.zeromercury.org/Zero_Mercury_Policy_Paper_EN.pdf

⁷⁷ see presentations from Mr. Rob Koppejan, ELC - Philips, and Mr. Pascal Leroy, Secretary General, WEEE Forum from 2008, EEB conference - "**Mercury-containing lamps under the spotlight**", http://www.zeromercury.org/080627_EEB_conf_lamps.html

With respect to non-electric and electronic devices containing mercury - awareness raising and special programmes to safely collect and treat/dispose those devices should be established - such as mercury thermometer collection , and exchange with mercury free products if possible. Examples of such exchanges have already taken place in France⁷⁸, Austria, and Germany⁷⁹.

2.7.Reduce emissions to water and soil

Important sources of mercury emissions to water and soil are dental clinics, industrial processes, waste landfills and application of sewage sludge.

Issues related to dental clinics have been covered under 2.2.2 and 2.5.1 .

Emissions from industrial processes are mainly covered under the atmospheric emissions section. References to IPPC are also valid with respect to emissions of pollutants to water and soil. Furthermore, directive on Priority substances 2008/105 has been adopted setting limits of concentrations in surface waters of 33 priority substances, including mercury and 8 other pollutants. The environmental quality standards for the priority substances and other pollutants listed in Annex I of this directive should be met by 2015.

2.7.1 Emissions from sewage sludge

The presence of mercury in sewage sludge makes it more difficult to use sludge as an agricultural fertilizer. In 1999 the average mercury content of sludge used in agriculture was 1.5 mg/kg of dry matter, leading to the introduction of 4.3 tonnes of mercury to EU agricultural land⁸⁰. Sludge is regulated by Directive 86/278/EEC of June 1986. Member States must prohibit the application of sewage sludge to soil where the concentration of one or more metals in the soil exceeds the limit values laid down in the first annex. For mercury the soil limit value is 1 to 1.5 mg/kg of dry matter for soils with a pH higher than 6 and lower than 7. Member States must also regulate the use of sludge so that the accumulation of heavy metals in soil does not exceed the limit values, in two ways: a) by laying down the maximum quantities of sludge which may be applied per unit of area per year while observing limit values for heavy metals concentration in sludge set in accordance with a second annex - for mercury this limit value is 16 to 25 mg/kg of dry matter; or b) by observing limit values for the quantities of metals introduced into the soil per unit of area and unit of time as specified in a third annex – for mercury this limit value is 0.1 kg/ha/yr.

Sweden uses another set of standards, for which the level of mercury in sludge must not exceed 2.5 mg/kg of dry matter to be used as a fertiliser on arable land. The Swedish Environmental Protection Agency has proposed reducing the limit to 1.8 mg/kg of dry matter as from 2005⁸¹.

The high mercury content in sewage sludge has led treatment facilities to search for other recipients willing to buy it, as mercury removal from sludge is not cost effective and

⁷⁸ <http://www.contaminations-chimiques.info/?2007/11/08/171-collecte-de-mercure-a-paris-avec-le-cniid>

⁷⁹ personal communication with DNR

⁸⁰ EU Legislation and Policy Relating to Mercury and its Compounds. Working Document, June 2004. Prepared to inform the development of an EU strategy on mercury, p. 12/42.

⁸¹ KEMI - Swedish Chemical Inspectorate. Mercury – Investigation of a general ban

combustion of sludge in waste incineration plants or special incineration plants for sewage sludge is expensive⁸². In some cases, it is sold to combustion plants to be burned in conjunction with coal, but this leads to higher mercury emissions to air, as discussed above, often involving additional pollution control measures.

The Commission adopted a Soil Thematic Strategy (COM(2006) 231) and a proposal for a Soil Framework Directive (COM(2006) 232) on 22 September 2006 with the objective to protect soils across the EU. The Strategy and the proposal have been sent to the other European Institutions for the further steps in the decision-making process. Despite the efforts of several Presidencies, the Council has been so far unable to reach a political agreement on this legislative proposal due to the opposition of a number of Member States constituting a blocking minority. The upcoming Presidencies will need to resume the discussions in order to make progress on this file.

Action proposed

45. Revision of the EU directive on sludge, dated from 1986 (86/278), is needed as soon as possible individually or in a package with the eventual adoption of the soil framework directive.

2.8. Protect against exposure⁸³

Methylmercury is highly toxic, causing damage to the human nervous system at even relatively low levels of exposure. It accumulates in the bodies of wildlife and becomes more concentrated as it moves up the food chain. Methylmercury also accumulates in human bodies and readily passes through both the placenta and blood-brain barriers. It poses a particular risk to pregnant women and young children who eat contaminated fish, especially the largest, oldest predatory fish at the top of the fish food chain. This is why the Commission's Directorate-General for Health and Consumer Protection has recommended that women who are breastfeeding or who are or might become pregnant should limit their consumption of large predatory fish, such as swordfish, shark, marlin, pike and tuna. The EU Commission Extended Impact Assessment on Mercury noted evidence of continuing exposures at or above the recommended 'safe' levels among some of the European population, especially in Mediterranean countries and the Arctic⁸⁴. In the USA, where exposure levels may be comparable, a study⁸⁵ estimates that between 300,000-600,000 babies born each year suffer from intelligence loss due to methylmercury exposure, which costs an estimated 8.7 billion dollars a year in lost earnings to the economy⁸⁶.

We strongly suggest that a new and comprehensive initiative must also be developed to better warn the public, and particularly sensitive populations, about exposure risks from the consumption of mercury contaminated fish and to better identify higher mercury fish. While health agencies have addressed this issue in individual countries, the EU as a whole should develop a collective strategy to reduce mercury exposure risks. Therefore, the revised EU regulation on 'Food information to consumers' should be closely examined to determine

⁸² Integrated Pollution Prevention and Control, Reference Document on Best Available Techniques for Large Combustion Plants LF/EIPPCB/LCP_BREF_FINAL, May 2005, p. 507.

⁸³ Section revised in relevance to EEB comments submitted 3rd June 2010.

⁸⁴ Extended Impact Assessment – Communication from the Commission to the Council and the European Parliament on Community Strategy Concerning Mercury, SEC(2005) 101, p.5

⁸⁵ Mount Sinai study: Public health and economic consequences of Methyl Mercury Toxicity to the Developing Brain, February 28, 2005 <http://ehp.niehs.nih.gov/members/2005/7743/7743.pdf>

⁸⁶ US EPA <http://www.epa.gov/waterscience/fish/advice/mercupd.pdf>

whether this approach, or a different approach should be pursued, given that the most recent co-decision procedure on this regulation has neglected the issue of providing consumers with appropriate labeling on the mercury content of fish or other seafood.

Action Proposed

46. An updated EU-wide risk communication and fish testing program for methylmercury in fish.

We therefore urge you to support an updated EU-wide risk communication and fish testing program for methylmercury in fish.

Providing health information to fish consumers regarding the presence of methylmercury in certain fish should be a top priority of any revised EU strategy to help women and people caring for children to make informed decisions. Targeted consumer safety labelling is an appropriate approach in this case. The US, several Member States and other countries, have already issued specific advice to vulnerable groups to limit or abstain eating certain species of fish in order to reduce methylmercury intake. Providing this sort of communication and testing program is in line to the EU Strategy on mercury (January 2005), aiming to reduce mercury levels in the environment and human exposure, especially from methylmercury in fish. The European Parliament supported this Strategy in March 2006. (For more information, see: http://www.zeromercury.org/EU_developments/100312_EEB_Fish_labelling_letter_ENVI-vote.pdf]