



**ZMWG Comments on the Introduction Chapter to the Guidance  
Document on BAT/BEP under Art. 8 of the Minamata Convention on  
Mercury  
1 August 2015**

**Page 3, section 1.7.1, in the first paragraph after the definitions, the last sentence should be extended:**

*Addition:*

“The use of BAT to control, and where feasible to reduce emissions, is required for new sources as defined in para 2(c) of Article 8 and is one of several measures which a Party should use for existing sources as defined in para 2(e) of Article 8 **in order to achieve reasonable progress in reducing emissions over time as per para 6 of Article 8**“.

*Rationale: This text reflects the wording of the Minamata Convention highlighting the general objective to achieve reasonable progress in reducing emissions over time.*

- **Page 3, section 1.7.1, fourth/fifth paragraph** (“This guidance is intended to support Parties...”)

*Modify:*

“This guidance is intended to support Parties in selecting and implementing BAT for **new and existing sources, including emission limit values associated with BAT/BEP. The techniques described are generally applicable to the sector as a whole and are economically and technically viable control options, as are the emission levels associated with BAT/BEP.**

**This guidance shall be used when selecting and implementing BAT for individual sources, it may be complemented by other updated information, where appropriate. It applies to any relevant source as defined in this Convention. “**

*Rationale: An introductory paragraph on how to use this guidance could be added to foster harmonised implementation and level playing field for regulated industry. The general requirement on Parties to set emission limit values that are consistent with the application of best available techniques as per Article 8 para 4 should be reflected in the introductory text. The techniques developed in the respective sector guidance are recognised as technically and economically viable for the sector as a whole, in accordance to the meaning of ‘available’ as per Article 2 (b). This point needs to be explicitly reflected in the introductory text. The new wording also takes account of the fact that BAT/BEP evolves over time and the guidance may not be complete, therefore other sources may be used as a complement if judged as appropriate by the implementing Party.*

- **Page 3, section 1.7.1, paragraphs on the 1-5 steps approach** (“The process for selecting and implementing BAT ...”)

*Modify:*

**The process could be expected to include the following general steps:**

Step 1: Establish information about the source, or source category. This may include, but not be limited to, information on the **desired outputs**, processes, ~~feedstocks or fuels~~ **input materials** and on the actual or expected activity levels including throughput. Other relevant information could include the expected life of the facility, which is likely to be particularly relevant when an existing facility is being considered, and any requirements or plans for controlling other pollutants. **Alternative methods of providing the same intended outputs should be considered in light of the overall protection objectives of the Convention or other relevant Treaties.”**

*Rationale: The first question to address by the Party is on whether certain desired output(s) from an industrial activity (e.g. electricity production, specific functions of a product or service to be delivered) covered by the Convention could be provided in an alternative manner without mercury release. The lifecycle approach considers any inputs or outputs, for this reason the more wider term of ‘input materials’ is proposed. The last sentence reflects the recital of the Convention and common international law principles that nothing in this Convention is intended to affect the rights and obligations of any Party deriving from any existing international agreement.*

**(new) Step 2:** Identify the full range of options ~~of~~, **including alternative methods of providing the intended outputs of the source under consideration, the emission control techniques relevant for the source under consideration and associated cross-media impacts**, including the techniques described in section 1.7.2 of this introduction **describing common generic techniques**, and in the chapters on specific source categories ~~of this guidance~~ **which follow.**

*Rationale: As per previous comment, a more comprehensive life cycle approach should be promoted which would also consider alternative methods or providing the intended societal need. The requirement to carefully assess cross-media effects in the decision-making process should be explicitly mentioned, which is implicit in the BAT definition.*

**(new) Step 3 (merged with Step 4) :** ~~“amongst these,~~ **Identify a list of available control techniques, select the control technique options which are the most effective to prevent, and where that is not practicable, to reduce emissions of mercury and releases of mercury to air, water and land and the impact of such emissions and releases on the environment. These should achieve a high general level of protection of the environment as a whole (all environmental media should be considered from an integrated approach).**

*Rationale: (step 4 is merged with step 3. As per the requirement of the Minamata Convention, the ‘most effective’ available technique(s) for delivering the intended objective of the Convention should be implemented. The Convention recognises that pollution prevention is preferred over control techniques as per Article 2 (b) of the Convention, which should be reflected in the introductory text.*

**(new) Step 4 (previous step 5):** ~~“Then determine which of these options can be implemented under economically and technically viable conditions taking into consideration costs and benefits, based also on the consideration that they are accessible to the operator of the facility as determined by that Party.~~ **the levels of environmental performance that needs to be achieved by the operator through the use of BAT/BEP that are consistent with the guidance under clear reference conditions that are enforceable and verifiable, with clear timeline for compliance. Monitoring and enforcement tools should then be laid down to ensure the performance levels are met.** The need for good maintenance and good operational control of the system to maintain achieved performance over time should be taken into account.”

*Rationale: The sector guidance documents reflect BAT/BEP which are judged generally applicable and therefore recognised as technically and economically viable to the sector. This point needs to be explicitly reflected in the introductory text also for reasons of harmonised implementation and level playing field for industry. It is not sufficient to just set levels of performance without any tools put in place to enable verification that these levels are met over time which should be specified. An explicit requirement to provide for monitoring tools as well as timescale for delivering ‘reasonable progress in reducing emissions over time’ reflects the requirements of the Minamata Convention text. All these parameters need to be duly considered by the Parties.*

- **Page 6, section 1.7.1, after** “The mercury capture can be enhanced by adding oxidizing agents (i.e. halogens) to the flue gas or by using impregnated activated carbon with halogens”

Addition:

**“The issue of PBDD/Fs formation in the ash when Bromine is added for ACI should be taken into consideration and subject to further monitoring requirements“**

*Rationale: Trials in coal-fired power plants indicated an increase of brominated dioxins in flue-gas ashes (Hutson et al. 2009) with data sources from the provider of brominated activated carbon suggesting that no increase of PBDD/Fs occurred. For this reason further data should be generated through monitoring requirements to ensure any potential cross-media effect is excluded from the use of this technique.*

*As ACI is used in all sectors mentioned in Annex D of the Minamata Convention this issue should be considered in the introduction.*

*The addition of bromine to the fuel is usual in the coal sector and in some cases in the waste sector. Therefore the potential formation of PBDD/F in the flue gas should be discussed in both sectors but should be coordinated.*

- **Page 7, table 2** (Minimum expected mercury removal performances of activated carbon techniques expressed as hourly average mercury concentrations)

*Modify (the values reported)*

*It is not clear what is meant with “carbon filters.” If fixed bed or moving bed filters are meant here the mercury content after cleaning would be much lower.*

*The performance of such filters is comparable with the performance of “Injection of brominated activated Carbon+ dust separator”, therefore the value of 0.01 mg/m<sup>3</sup> is too high. It should be changed into 0.001 mg/m<sup>3</sup>.*

*The same goes with sulfur impregnated carbon filters. The carbon in such filters can be impregnated with sulfur as well as with bromine. The value of 0.010 mg/m<sup>3</sup> is too high. It should be changed into 0.001 mg/m<sup>3</sup>.*

*With carbon injection and dust separation reduction efficiencies of 90% and more are available. Therefore the mentioned value of 0.05 mg/m<sup>3</sup> is much too high. Even with the combination of an ESP with carbon injection values below 0.01 mg/m<sup>3</sup> are achievable It should be changed into 0.01 mg/m<sup>3</sup>.*

### **Comments on costs and benefits (Sections 1.3.2 + 1.3.3 and respective sector guidance on costs)**

*Modify / complement: “Costs **and** benefits of mercury control technologies”*

*Information on the benefits of avoided hg emissions to the environment, public co-benefits of controls should be considered. This is in line with the objectives of the Minamata Convention (Article 1) based on human health and environmental protection and the definition of BAT (Article 2 (b) point ii). Only costs to operators of sources for installing hg controls are considered, which is a one sided presentation of the picture around mercury controls. Public benefits (environmental + health protection) and benefits for the operators need to be presented in the relevant sections as well. The policy makers have agreed that the Minamata Convention should bring wider benefits, not just costs.*

*Data is available for various sources.*

- a) *Industrial facilities (covered under the EU PRTR system)*

*The European Environment Agency has established average damage costs per tonne of mercury emissions in their recent report on the Costs of air pollution from European industrial facilities 2008 –*

2012 at 910,000 EUR<sub>2005</sub> per tonne, specific to the trans-boundary transport of air pollution, population densities and purchasing power in Europe. <http://www.eea.europa.eu/publications/costs-of-air-pollution-2008-2012>. A methodology calculating health benefits of reduced mercury emissions to air and water should include an economic valuation of IQ point losses avoided even for low exposure levels, adjusted for national purchasing power. Figures for the average health economic benefit of € 13,579 per IQ point loss at seven years of age, and for the life time economic losses from mercury exposure, exists for the EU, based on US data (Bellanger et al. Environmental Health 2013, 12:3 <http://www.ehjournal.net/content/12/1/3>).

b) Large coal-fired power stations (290 facilities)

The EEB/Greenpeace assessed the health impacts due to tighter air pollution standards, including on what it would mean if the EU would implement a tighter hg limit for coal LCPs. The study is available here <http://www.eeb.org/index.cfm/library/eu-health-impacts-technical-report/>. The cost figures do also consider potential benefits of co-benefits of controls on other pollutants (NO<sub>x</sub>, PM and SO<sub>2</sub>).

c) The US EPA has also made some useful benefit calculations in the MATS rulemaking which should be considered.