



UNITED NATIONS ENVIRONMENT PROGRAMME

Programme des Nations Unies pour l'environnement Programa de las Naciones Unidas para el Medio Ambiente

Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة

联合国环境规划署



Ref: PMB/GF/29

Date: 11 December 2009

Subject: UNEP Paragraph 29 study: Request for information on various mercury emitting sources

Dear Sir or Madam

At the Open Ended Working Group (OEWG) meeting in Bangkok, 19-24 October, 2009 UNEP gave an update on the preparation of the study requested in paragraph 29 of decision 25/5 III of the UNEP Governing Council. The purpose of the study is to inform the work of the intergovernmental negotiating committee on a legally binding instrument on mercury.

The study will focus on the various types of mercury-emitting sources and current and future trends in mercury emissions, including an analysis and assessment of the cost and the effectiveness of alternative control technologies and measures. Of particular interest are the main mercury emitting sectors; coal combustion, non ferrous metal smelting, cement production and waste incineration. The study will be based on information from available published reports [on global mercury emissions and emission control options] and information collected from a small number of countries; the member states of the European Union (EU), the United States of America, India, China, South Africa, Russia and Brazil. The study is expected to produce a set of scenarios in which ranges of control costs and likely emission reductions will be presented in aggregated form. The results will be extrapolated to provide an overview of total costs for different emission reduction scenarios on a global scale.

We are requesting information from the countries on emissions, technical source characterization and current and future plans for emissions control through a series of set out in the annex to this letter. Please note that Excel spreadsheets to assist your submission of more detailed quantitative information will be forwarded to you shortly.

See attached list of addresses (annex 1)

Where necessary, the project team, led by Mr. Gunnar Futsaeter of UNEP DTIE Chemicals Branch, will consult with national contacts to ensure that the excel sheets are adapted to suit the structure of the individual sectors and the availability of information in the selected countries. In this regard it would be helpful if you would nominate a technical coordinator with whom we may be in contact during the preparation of the study.

Please note that we need this information before 15 April 2010 to be able to use the information in the production of the report to the negotiating committee.

Please send the information to: Gunnar Futsaeter, UNEP Chemicals Branch, DTIE, email: gunnar.futsaeter@unep.org. If you have any questions, please do not hesitate to contact Mr. Futsaeter by telephone: +4122 9178185.
Thank you in advance for the information.

Yours sincerely,



Per M. Bakken
Head
Chemicals Branch
Division of Technology, Industry and Economics (DTIE)

Annex 1: List of addresses

Brazil

Ms. Sérgia de Souza Oliveira, Director of Environmental Quality,
Secretariat of Climate Change and Environmental Quality,
Department of Climate Change,
Email: sergia.oliveira@mma.gov.br

China

Mr. Yingxian Xia, Deputy Director
Department of International Cooperation,
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CC

Ms. LI Lingling
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European Union

Mr. André Zuber
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CC

- Ms. Marianne Wenning, Head of department,
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- Ms. Jill Hanna
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India

Dr. Manoranjan Hota, Additional Director
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CC

- Dr. G.K. Pandey, Advisor
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Email: pandey@menf.delhi.nic.in

Russia

Natalia Karpova, Head of Division
Department of International Cooperation
Ministry of Natural Resource and Environment
Email: karnat@mnr.gov.ru

CC

Alexander Romanov,
Head of International cooperation section,
FSUE "SRI Atmosphere",
Email: alexann.rm@gmail.com

South Africa

Director General: Department of Environmental Affairs - Nosipho Ngcaba –
Email: nngcaba@deat.gov.za

CC

- Ms. Esther Theron, Head of the Office of the Director General. - Email:
etheron@deat.gov.za
- Ms. Joanne Yawitch Deputy Director General: Environmental Quality and Protection. -
Email: jyawitch@deat.gov.za
-Mr. Greg Scott, Special Advisor: Industrial Process Engineering, DEA, - Email:
gscott@deat.gov.za

USA

Carl Mazza, Science Advisor
Office of Air and Radiation, EPA
Email: Mazza.Carl@EPA.GOV

CC:

- Marianne Bailey, Email : Bailey.Marianne@epamail.epa.gov
- Mr. John Thompson, US State Department, Email: ThompsonJE2@state.gov

Annex 2 : General approach and requested data.

The main approach of this activity includes the following steps:

1. Updating of available information on emissions.
2. Updating information on source characterization including location, capacity (energy, fuel, cement production, waste etc), current air pollution control.
3. Updating information on future development of sectors in relation to structural changes (due to economic or other factors), future plans for additional air pollution control, future plans for energy savings or other measures to reduce CO2 emissions.
4. Developing overview of control options for mercury emissions from the selected sources including costs and expected efficiency.
5. Assessing of potential control scenarios for the different sectors in the selected countries.
6. Extrapolating to global scenarios and assessment of global costs and potential emission reductions

A zero-draft report is currently being prepared. This report will be finalized and distributed in January 2010. The zero draft report will be entirely based on existing information and will serve as a first estimate of costs and efficiencies. More importantly, it will describe the gaps in knowledge concerning the characteristics of the selected sectors, uncertainties in emission estimates and additional information needed to perform a more detailed and accurate study. The methods used for the cost – efficiency calculations as well as assumptions made will also be described.

The second step of the study involves a more detailed assessment of the emitting sectors in the selected countries based on information provided by the governments through this request. This study will be finalised by October 2010 and will be presented to the second meeting of the Intergovernmental Negotiating Committee early 2011.

Description of requested information

Source characterization

To facilitate the collection of information, we will distribute excel sheets in which the requested information can be compiled. The information mainly covers the technical description of the sources. Information can be provided at two different levels; on an individual plant basis or on an aggregated basis. Individual source characterisation is preferred, but aggregated (by sector, facility type, coal type used etc) information may be the only feasible alternative in some cases. This information will be used to estimate the current mercury emissions as well as provide information on the range of costs and efficiencies of currently operating pollution control. Mercury reductions as potential co benefits of other emission control technologies such as ESPs or scrubbers for particle and SO2 removal will be included.

It would be beneficial if the reporting of source characterization information could be made in close contact with the project team. We realize that the sector characteristics in the individual countries may not fit totally with the excel sheets. Providing data may be easier

if done in consultation with the project team, and modifications of the excel sheets could be made to suit the characteristics in the individual countries.

Please contact:

Project team: John Munthe, Project coordinator, IVL Swedish Environmental Research Institute, Email: john.munthe@ivl.se Tel: +46 31 7256256
UNEP: Gunnar Futsaeter, gunnar.futsaeter@unep.org .

National inventories

The study will be based on the global inventory for 2005 presented in the 2008 UNEP/AMAP report. If more recent national inventories are available, or if complementary information has been collected for 2005, this information is welcomed.

Future plans

In addition to the source characterization, information on future plans for air pollution control, energy savings or other measures driven by environmental or climate policies is requested (including information on whether the plans are legally binding or voluntary). Predicted growth of the selected sectors is also relevant information. This information will be used to assess how mercury emissions will change in the future and how implementation of other policy driven measures will affect these emissions.

Case studies and good examples

Practical examples of installed emission control measures especially with documented information on achieved emission reductions, descriptions of technologies and approaches as well as costs are highly relevant for this project. The information may cover a single source (power plant, cement factory etc) or a whole sector.

Use of the data

In addition to the compilation of information from the selected countries, an assessment of mercury control options, their applicability to different source types, and their costs and efficiencies will be made. The country specific information will be combined with the appropriate control options to provide scenarios of emission control for mercury. As far as possible, results on control efficiencies and costs will be derived from explicit examples in the selected countries.

The final results of this study will not focus directly on the selected countries. Results from the assessment of control options in the individual countries will be used as examples covering a range of technological and economical situations as well as different trends in emissions and industrial development.

Reporting

The information described above will be used to prepare a final report to be made available as a meeting document to the second meeting of the intergovernmental negotiating committee (INC). The content of the study will be presented to the INC meeting in January 2011.

Deadline for information

The information described above is requested at the latest on April 15, 2010. Later submission of parts of the information may be possible after agreement with the project coordinator.

Questions on the sectors

Note: These questions are for general answers and explanations. Please use the excel sheets for data submission.

Questionnaire – coal combustion

Note: These questions are for general answers and explanations. Please use the excel sheets for detailed data submission.

Sector description: Coal fired power plants. Production of electricity and heat, industrial and public utilities.

1. What is the total amount of coal consumed annually (please specify year)?
2. What is the origin and quality of the coal? (Anthracite, Bituminous, Sub bituminous, Lignite, specify chloride content and mercury content wherever possible).
3. What are the projected changes in energy (electricity and heat) production based on coal between now and 2020 and 2050?
4. What is the total energy (heat and electricity) production, based coal in utility and industrial boilers?
5. What is the total number of coal fired power plants in utility and industry sectors?
6. What are the broad technical characteristics of the power plants (fluidized bed, powder, etc.)
7. What is the status of air pollution emission control in use in the coal fired power plants? Percentage of plants/capacity with cyclones, ESP, bag filters, particle scrubbers, SO₂ scrubber, limestone injection, NO_x-reduction,
8. What are the current (2005 or more recent) emissions of SO₂, NO_x, particles, CO₂ and mercury from the sector?
9. Are there plans for increased air pollution control based on national legislation or international conventions? Please specify plans with information on which pollutants will be controlled and by which technologies. Specify which legislation or international agreement (if applicable)
10. Are there plans to modernise the sector to achieve a higher degree of energy efficiency?
11. What are the projected emissions of carbon dioxide and other air pollutants (SO₂, NO_x, PM) 2020 and 2050?
12. What are the current (2005 or later) estimated mercury emissions from the sector and what are the projected emissions 2020 and 2050?
13. Please provide information on any case studies where mercury emissions have been monitored.

Questionnaire – cement production

Note: These questions are for general answers and explanations. Please use the excel sheets for data submission.

Sector description: Cement production facilities.

1. What is the total annual capacity of the cement production sector?
2. How is production expected to change between now and 2020 and 2050?
3. What is the total number of cement production plants?
4. What are the main fuel types and which percentage is used?
5. What is the total amount of coal consumed annually (please specify year)?
6. What is the origin and quality of the coal? (Anthracite, Bituminous, Sub bituminous, Lignite ; specify chloride content, mercury content wherever possible).
7. Are other fuel types used (waste, tires etc)?
8. What is the total amount of other fuel consumed annually (please specify year)?
9. What is the total amount of limestone consumed annually (please specify year)?
10. What is the origin and quality of the limestone? Mercury content? Which other raw material are used (slag etc)?
11. What are the technical characteristics of the cement plants (dry kiln, wet kiln, pre-heater/pre-calciner)
12. What is the status for air pollution emission control? Percentage of plants/capacity with cyclones, ESP, bag filters, particle scrubbers, SO₂ scrubber, limestone injection, NO_x-reduction.
13. What are the current (2005 or more recent) emissions of SO₂, NO_x, particles, CO₂ and mercury from the sector?
14. Are there plans for increased air pollution control based on national legislation or international conventions? Please specify plans with information on which pollutants will be controlled and by which technologies. Specify which specific legislation or international agreement (if applicable)
15. What are the projected changes in the sector between now and 2020 or 2050?
16. What are the projected emissions of carbon dioxide and other air pollutants (SO₂, NO_x, PM) 2020 and 2050?
17. What are the current (2005 or later) mercury emissions from the sector and what are the projected emissions for 2020 and 2050?
18. Please provide information on any case studies where mercury emissions have been monitored.
19. Please provide any available information on investment and running costs for emission control of mercury.
20. Please provide information on any case studies where mercury emissions have been monitored.

Questionnaire – Non ferrous metal production

Note: These questions are for general answers and explanations. Please use the excel sheets for data submission.

Sector description: Smelters for Copper, Zinc, Lead, Gold, Mercury.

1. What is the total annual capacity of the non ferrous metal production (per metal)?
2. What is the total number of smelters?
3. What is the origin and composition (including mercury content) of the main ores?
4. What are the total amounts used of the different ores?
5. Describe the main processes used for the different ores. E.g. roasting, pyrometallurgy, electrowinning, etc.
6. What is the total amount of coal used in pyrometallurgy processes annually (please specify year)?
7. What is the origin and quality of coal used (Anthracite, Sub bituminous, Bituminous, Lignite), and chloride content, mercury content?
8. What is the status for air pollution emission control? Percentage of plants/capacity with cyclones, ESP, bag filters, particle scrubbers, SO₂ scrubber, limestone injection, NO_x - reduction.
9. What are the current (2005 or more recent) emissions of SO₂, NO_x, particles, CO₂ and mercury from the sector?
10. What are the expected changes in production between now and 2020 and 2050?
11. Are there plans for increased air pollution control based on national legislation or international conventions? Please specify plans with information on which pollutants will be controlled and by which technologies. Specify which specific legislation or international agreement (if applicable)
12. Are there plans for modernisation of sector (energy saving) between now and 2020 or 2050?
13. What are the projected emissions of carbon dioxide and other air pollutants (SO₂, NO_x, PM) in 2020 and 2050?
14. What are the current (2005 or later) mercury emissions from the sector and what are the projected emissions in 2020 and 2050?
15. Please provide information on any case studies where mercury emissions have been monitored.
16. Please provide any available information on investment and running costs for emission control of mercury.

Questionnaire – Waste incineration

Note: These questions are for general answers and explanations. Please use the excel sheets for data submission.

Sector description: Medium to large scale waste incineration facilities

1. What is the fraction and total amount of household waste incinerated?
2. What is the total number of household waste incinerators?
3. What are the technical characteristics of the household waste incinerator plants?
4. What is the average mercury content in household waste?
5. What are the mercury emissions from household waste incineration?
6. What is the fraction and total amount of industrial waste incinerated?
7. What is the total number of industrial waste incinerators?
8. What are the technical characteristics of the industrial waste incinerator plants?
9. What is the average mercury content in the industrial waste?
10. What are the mercury emissions from industrial waste incinerated?
11. What is the fraction and total amount of hazardous and medical waste incinerated?
12. What is the total number of hazardous and medical waste incinerators?
13. What is the technical characterization of the hazardous and medical waste incinerator plants?
14. What is the average mercury content in the hazardous and medical waste?
15. What are the mercury emissions from hazardous and medical waste incineration?
16. What is the status for air pollution emission control? Percentage of plants/capacity with cyclones, ESP, bag filters, particle scrubbers, SO₂ scrubber, limestone injection, NO_x-reduction.
17. What are the current (2005 or more recent) emissions of SO₂, NO_x, particles, and mercury from the sector?
18. What are the expected changes in incineration between now and 2020 and 2050?
19. Are there plans for increased air pollution control based on national legislation or international conventions? Please specify plans if possible with information on which pollutant will be controlled and by which technologies.
20. Are there plans for modernisation of sector until 2020 or 2050?
21. What are the projected emissions of mercury and air pollutants 2020 and 2050?
22. Please provide information on any case studies where mercury emissions have been monitored.
23. Please provide any available information on investment and running costs for emission control of mercury.
24. Please provide information on any case studies where mercury emissions have been monitored.