

## Report of the 3<sup>rd</sup> Meeting of the UNEP Global Mercury Air Transport and Fate Research Partnership October 10-11, 2007, Washington, D.C.

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The 3<sup>rd</sup> meeting of the UNEP Global Partnership for Mercury Air Transport and Fate Research (F&T) took place in Washington, D.C. on October 10-11, 2007. The meeting was hosted by the U.S. Environmental Protection Agency and chaired by Dr. Nicola Pirrone, Italy. The agenda as well as the business plan, and participants' presentations are available for downloading on the F&T web site (<http://www.cs.ija.cnr.it/UNEP-MFTP/index.htm>).

*Meeting Purposes and Agenda.* The purposes as reflected in the agenda were:

- to develop a refined business plan (the Partnership's initial one having been developed at the January 2007 F&T meeting in Gatineau and posted on the F&T web site), taking into account the new draft UNEP format for Partnership business plans; and,
- to finalize the Partnership's plan for developing a F&T Report addressing emissions, air modeling and air monitoring that will assist UNEP in preparations of a UNEP Emissions Report required by the UNEP Governing Council in time for the February 2009 UNEP GC meeting.

*Meeting Participants.* The participants included representatives of the five partner countries: Canada, Italy (lead), South Africa, Japan and the United States, together with representatives from UNEP and the Electric Power Research Institute (EPRI); representatives from the National Resources Defense Council (NRDC) and, various mercury experts.

*Welcome.* Dr. Kevin Teichman, Acting Deputy Assistant Administrator for Science, Office of Research and Development, USEPA, welcomed participants with remarks on October 11; and, Mr. Scott Fulton, Acting Deputy Assistant Administrator, Office of International Affairs, USEPA, provided welcoming remarks on October 12.

### Meeting Salient Points

#### *Day One – October 10 – Partnership matters*

1. Nicola Pirrone, Italy, lead of the F&T, noted that a draft revised business plan had been provided participants before the meeting (prepared by the U.S. and Canada) that would provide the basis for discussion of Partnership matters. He emphasized that the Partnership report, to be developed in collaboration with the UNECE-LRTAP Task Force on Hemispheric Transport of Air Pollutants (UNECE-HTAP), can be expected to provide an important contribution to UNEP; this task provides the opportunity to think about all sources. The report will focus on new information that has been developed since UNEP's 2002 Global Mercury Assessment.
2. John Whitelaw, UNEP, indicated that UNEP, in accordance with the February 2007 UNEP GC Mercury Decision, is focusing on three tasks:

- a) strengthening the Partnerships. UNEP would like to see each of the five Partnerships (this one as well as those addressing Chloralkali Plants, Artisanal Gold Mining, Coal Combustion and Products) complete business plans using the new draft UNEP format by November 2007. A draft overarching framework is being drafted which UNEP eventually would like comment on and would be finalized in early 2008.
  - b) reviewing all options for dealing with the global mercury issue. An Open-Ended Working Group (OEWG) is being established to review all options (treaty, voluntary mechanisms, etc) that would meet twice, first in November 2007 (Bangkok) and then again in late 2008.
  - c) developing an Emissions Report that updates part of the 2002 UNEP Global Mercury Assessment. UNEP is embracing a two-track process, welcoming the draft of the F&T Report by the end of January 2008. In the meantime, UNEP and AMAP will be developing other information which will be shared with the F&T at the same time.
3. *New Partners expected.* Nicola Pirrone reported that Slovenia and South Korea have indicated that they will be joining the Partnership. John Whitelaw indicated that Switzerland would be forwarding its formal notice of joining soon.

Nicola also reported that China is considering joining the Partnership. He noted the recent signing of a Chinese-Italian bilateral agreement and latest communications with China's State Environmental Pollution Administration (SEPA) that provide for information exchange and stack measurements at a coal-fired power plant in China and Italy.

4. Terry Keating, USEPA, co-chair of the UNECE – HTAP Task Force, noted that there was a question of timing of different mercury assessments. To illustrate the point, the following schedule was provided on charts to the group:

January 08	Share first drafts of T and F Report chapters with UNEP
April 08	Partnership Workshop in Rome, Italy
May 08	Final T and F Report to UNEP
July 08	Review of draft UNEP Emissions report
Nov 08	Final UNEP Emissions report
Feb 09	UNEP Governing Council (GC) meeting
Dec 09	HTAP assessment
2011	Arctic Monitoring Assessment Program (AMAP) assessment

The sense of the group was that although there different assessments are being prepared for finalization at varying times, this was not a bad thing and that good communication could minimize any potential problems.

- 5. Noriyuki Suzuki, Japan, reported on the status of multimedia modeling efforts of mercury fate and transport in Japan. Koyo Ogasawara, Japan reported on preliminary data obtained at the Cape Heto Atmosphere and Monitoring Station in Okinawa.
- 6. Grace Howland, Canada, reported on the Canadian contributions to the Partnership emphasizing that Canada:

- will contribute to the development and review of the Partnership's Transport and Fate Report, participating in the meeting in Italy.
  - is making available its own National Pollution Release Inventory (NPRI), which indicates that Canada's annual mercury emissions are about 6 tons (a 90 percent reduction since the 1970's).
7. Joy Leaner, South Africa, reported (Attachment 8) that:
- South Africa launched (in 2006) the South African Mercury Assessment (SAMA) Program, a comprehensive study of mercury emissions and of controls, that includes development of a regulatory framework.
  - Current studies are indicating much lower emissions than those in the 2000 global inventory (prepared by Pacyna, Norway), which had indicated that South African emissions are the second highest in the world (after China). (The lower estimates owe, in part, to incorrect assumptions that had been made, e.g., the assumption that mercury is used in mining, while actually a cyanide process is used.)
  - An accredited reference lab will be up and running within a year;
  - South Africa supports development of research to better understand mercury emissions, transport and fate throughout southern Africa.
  - South Africa has needs for data on mercury in coal contents and for measurements of coal combustion emissions. It was agreed that this focus may provide the basis for follow-up with various members of the Partnership, including Alan Kolker, USGS, who noted the USGS World Quality Inventory database may be useful.
8. Stan Durkee, USEPA reported that:
- In addition to USEPA, the contributions of three other Federal agencies (NOAA, USGS and DOE) are indicated on the Partnership web site.
  - A major USEPA contribution is the continuation of speciated measurements of atmospheric mercury (together with PM and other pollutants) at the high altitude station at Mauna Loa, Hawaii, to better understand transport and fate of globally cycling mercury and obtain a long-term record of mercury species. A notice of data availability will be placed on the UNEP web site.
9. Alan Kolker, U.S. Geological Survey reported on USGS's coal analysis in China.
10. Leonard Levin, Electric Power Research Institute (EPRI), provided a status report on EPRI's related research activities.
11. Nicola Pirrone, in reporting on Italy's activities, emphasized that:
- Italy has led various cruises to obtain data on Mediterranean marine boundary layer that have resulted in a good grasp of air-sea interface/interplay. These data will be included in the Partnership report. In 2008/2009, a cruise in the Atlantic is planned.
  - He has applied for funding to do work in the Arctic to better understand air/ice interaction.
  - Information on the recent USEPA STAR grants relating to climate change and mercury should be posted on the Partnership webpage with links to project homepage when available.

12. John Whitelaw reported that UNEP in April 2007 had started a pilot project with five countries through a workshop in Bangkok, Thailand, using the UNEP tool kit to develop emissions inventory in each country. While timing has been a problem for agreements to be completed, the Philippines are “on board” this month to start using the tool kit to develop their own inventory. The results will likely not be ready in time for the F&T Report.

### Day One – October 10 – DRAFT Business Plan

13. John Whitelaw stated that UNEP would like the Partnership’s revised business plan by November. In developing this product, indicators of success do not have to be developed now, but objectives and current efforts should be clearly stated.
14. Following discussion of the draft business plan prepared by the U.S. and Canada a revised plan was developed, reflecting the following major changes:
- The “long term priority actions” section now includes language calling for development of:
    - a global, coordinated network for assessing mercury levels in the atmosphere;
    - a global, coordinated network for research that would allow for the creation of a modeling framework for source receptor relationships; and
    - development of a global emissions inventory.
  - The “long term priority actions” section now includes a table, as suggested by Grace Howland, to which each of the Partners are requested to indicate how their contributions align with these actions.

The red-lined marked-up version is provided in the draft of the F&T Business Plan which will be circulated to the Partners for comment.

### Day Two – October 11 – DRAFT Business Plan

15. Nicola Pirrone presented the plan for developing the F&T Report to the group and later to scientists on a two hour teleconference, emphasizing that:
- Rough draft chapters will be provided UNEP by January 31, 2008. The period up until the workshop, tentatively set for April 14-17, 2008, in Rome, will focus on revisions to the drafts. At the workshop, lead authors will present their chapters and receive feedback. Revised drafts were to be submitted to Nicola in mid May 2008. The final report will be made available to UNEP in late May/early June 2008.
  - The scope of the report will be limited to the areas within the scope of the Partnership, i.e., emissions, air monitoring and air modeling.
  - There is a need to synthesize information due to length constraints.
  - An effort will be made to address the most recent data, but establishment of data cut-offs will be necessary.
  - The summary chapter in each of the three areas is critical to the task of furnishing information to UNEP and will be finished last to ensure all details captured.

- At least one article in a scientific journal would be envisioned for each of the three parts of the F&T Report. The possibility exists also of including some material in a book, in a fashion similar to the results of a collaborative effort Nicola led in 2004 which yielded *Dynamics of Mercury Pollution on Regional and Global Scales*, edited by Nicola Pirrone and Kathryn Mahaffey.
16. With regard to F&T Report Part I "Emissions,"
- Coal-bed fires will be included in chapter 1, "Overview of emissions from point and diffuse sources."
  - A lead for the India emissions discussion has not been identified. (A lead has since been identified, Prof. Aaron Mukherjee, University of Helsinki.)
  - In response to a suggestion by Marilyn Engle, USEPA, Nicola indicated that he would contact the author of Chapter 3 on industrial sources in China to ensure it would include mercury mining as well.
  - Joy Leaner volunteered to work with others in developing a chapter on South African emissions.
  - It was noted that Hans Friedli's chapter on mercury emissions from forest fires would be the first time the topic has been treated in global assessments.
  - It was noted that Chapter 6 dealing with "natural emissions" should be re-titled "natural and legacy emissions."
17. With regard to F&T Report Part II. "Mercury Measurements"
- Additional discussion is needed as to how to organize land-based hemispheric measurements in northern and southern hemispheres (by continent or country?).
  - Leonard Levin, EPRI, noted the need for a global mass balance discussion, including a review of current work. Gerald Keeler, University of Michigan, and chapter author, indicated that he would give this some thought.
18. With regard to F&T Report Part III "Understanding Atmospheric Mercury on Hemispheric and Global Scales," Noriyuki Suzuki, Japan, suggested that a chapter be included that would address ongoing emissions/air monitoring/air modeling activities, such as the Okinawa monitoring program, that have not as yet yielded peer reviewed data. He suggested that it could be limited to information from the Partners. In response to Nicola's inquiry as to whether he would be willing to author such a chapter, he agreed, but did not envision reviewing all such literature for possible inclusion. Thus, additional clarification may be desirable.
19. There was some discussion of the overall organization of the F&T report. Dan Jaffe, University of Washington, questioned whether overlap in chapters would be a problem and whether length of chapters posed any problem. Nicola indicated that this should not be a problem, since the summary information is what will be most likely included in the UNEP report itself. While the F&T Report could be long (400-500 pages), perhaps it would be wise to keep each individual chapter to 20-25 pages.
20. In response to a question by Tony Hynes, University of Miami, as to whether unpublished work can be used in the writing of the chapters, Nicola Pirrone stated that the overall

approach is to use peer reviewed data but that there may be exceptions, perhaps in a section of each relevant chapter. This will need to be discussed on a case-by-case basis.

21. The relationship between the F&T Report and the UNEP report was discussed. John Whitelaw noted that the F&T Report will not be an annex to the UNEP report, because this would require translation into six languages. Instead it will be made available as a separate report, with the UNEP report containing a summary of the F&T report. In response to a question from Terry Keating, John Whitelaw indicated that, depending on the Partnership's decision, the F&T Report would be assigned an official UNEP number so that it can be tracked on the UNEP web site.
22. John Whitelaw indicated that if the Partnership would like UNEP to make a contribution, consideration should be given to developing and providing a budget to UNEP ASAP. Also, he would like to see a title selected early on.
23. It was agreed, at John Whitelaw's suggestion, that the Partners would, in some manner, "sign off" on the report, since it is a Partnership product. At Joy Leaner's suggestion, it was agreed that the Italy meeting would include a Partnership business meeting on the third day where the Partners could discuss the draft Report.

### Summary of Overall Agreements Reached

**Partnership Business Plan.** The Partnership agreed that:

- The draft of the F&T Business Plan, as modified at the meeting, reflects the consensus of the Partnership and can be submitted to UNEP, as requested, in early November 2007.
- Prior to submission, each Partner will provide a final individual review of the revised draft and provide comments to Nicola Pirrone, giving attention to the completion of the table of "long term priority actions" indicating how each Partners' contributions align with these actions

**F&T Report.** The Partnership:

- Affirmed, after discussion, the plan and schedule for accomplishing the three-part Report (emissions, air monitoring, air modeling), as outlined by Nicola Pirrone, without significant modification.
- Recognized that meeting the tight schedule will require extensive cooperation and coordination. This schedule calls for initial drafts of all chapters will be provided UNEP by January 31, 2008; revised drafts will be developed for a workshop in Rome, Italy, tentatively set for April 14-17, 2008, at which time lead authors will present their chapters; and, final report to be submitted to UNEP in late May/early June 2008
- Decided that the next Partnership Business Meeting would be held during the week of the Rome workshop, at which time the Partners would discuss the draft Report.