PROGRESS IN ACTIVITIES IN 2009 AND FUTURE WORK

HEMISPHERIC AIR POLLUTION

Report by the Co-Chairs of the Task Force on Hemispheric Transport of Air Pollution

INTRODUCTION

1. This report summarizes the activities of the Task Force on Hemispheric Transport of Air Pollution, in accordance with the workplan for the implementation of the Convention, approved by the Executive Body at its twenty-sixth session (ECE/EB.AIR/96/Add.2, item 2.4). It is divided into four parts. Chapter I is a report of the international workshop on regional and intercontinental air pollution with the focus on Asia, held on 13 and 14 October 2008 in Hanoi. Chapter II is a report of the workshop focusing on Eastern Europe, Caucasus and Central Asia (EECCA) and the Arctic, held from 1 to 3 April 2009 in Saint Petersburg, Russian Federation. Chapter III is a report of the workshop on regional-global and air quality-climate linkages jointly organized with the Task Force on Measurement and Modelling, held from 17 to 19 June 2009 in Paris. The joint workshop was combined with the fifth meeting of the Task Force on GE.09-22657
Hemispheric Transport of Air Pollution. Activities of the Task Force for the remainder of 2009 and the proposed workplan for 2010 are presented in chapter IV.

2. Further details of the workshops and the ongoing activities of the Task Force may be found at: http://www.htap.org.

I. INTERNATIONAL WORKSHOP ON REGIONAL AND INTERCONTINENTAL TRANSPORT OF AIR POLLUTION

3. The workshop on regional and intercontinental air pollution with the focus on Asia (Hanoi 13–14 October 2008) was organized by the Task Force in conjunction with the eight meeting of the Scientific Advisory Committee (SAC) of the Acid Deposition Monitoring Network for East Asia (EANET), with the assistance of the United Nations Environment Programme (UNEP) Regional Resource Centre for Asia and the Pacific (RRC.AP), and in coordination with the Malé Declaration on Control and Prevention of Air Pollution and Its Likely Transboundary Effects for South Asia. The workshop was hosted by the Vietnamese Environmental Protection Administration (VEPA).

A. Attendance

4. The workshop was attended by about 90 experts including those from the following Parties: Canada, Czech Republic, Denmark, Russian Federation, United Kingdom of Great Britain and Northern Ireland, United States of America and the European Community. In addition, experts from the following countries from outside the United Nations Economic Commission for Europe (UNECE) region attended: Bhutan, Cambodia, China, India, Japan, Lao People’s Democratic Republic, Nepal, Malaysia, Maldives, Mongolia, Myanmar, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand and Viet Nam. Representatives of the Chemical Coordinating Centre (CCC) of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), the World Meteorological Organization (WMO) and the European Commission’s Joint Research Centre (JRC) participated.

B. Organization of work

5. Mr. T. Keating (United States) and Mr. A. Zuber (European Community), Co-Chairs of the Task Force, chaired the workshop. The presentation materials are available at: http://www.htap.org/.
C. Workshop objectives

6. The main objectives of the workshop were to enhance technical and scientific cooperation on regional and intercontinental transport of air pollution, with a focus on Asian air pollution issues. In particular, the workshop aimed:

   (a) To present and discuss regional and global modelling of air pollution transport under Model Inter-Comparison Study-Asia (MICS-Asia) and the Task Force to review the status of atmospheric monitoring in the region, including monitoring of mercury, ozone, aerosols, sulphur and nitrogen deposition;

   (b) To review the emission inventories and projections for Asia;

   (c) To review available assessments of transboundary air pollution impacts on human health, welfare, and ecosystems;

   (d) To recommend and plan further studies of relevance to better understand regional and intercontinental transport of air pollution in Asia.

D. Summary of conclusions

7. Conclusions from the session on global and regional modelling on long-range transport:

   (a) Participants of the meeting took particular note of the progress made in the modelling to assess the linkages between global and regional scales for processes governing long-range transport such as vertical mixing and regional inflow/outflow and the further planned efforts to assess regional source-receptor relationships and other parameters for ozone and fine particle pollution in the region. They further noted that source-receptor relationships were likely to depend on the exact location of the emissions and receptor points. Future efforts in the MICS-Asia phase 2.b and 3 would provide further insights on the role of megacities’ emissions and climate change air pollution linkages;

   (b) Participants recommended that further progress be reported at the joint meeting of the Task Force and the Task Force on Measurements and Modelling in June 2009 and also be incorporated into the Hemispheric Transport of Air Pollution (HTAP) 2010 assessment report. They also saw a need to identify and agree on common techniques, metrics and parameters inter alia for source-receptor relationships to ensure comparability between regional- and global-scale model experiments, including the future scenarios for the hemispheric transport of air pollution. In addition, the participants noted a need to further develop modelling capacity for the Asian region and to improve access to basic information such as emission inventories and projections.
and observations for evaluation. The MICS-Asia experiments, combined with JRC model evaluation tools (JRC HemiTAP), offered a possible toolkit for use in training for modellers in the region.

8. Conclusions from the session on impacts of transboundary air pollution in Asia:

   (a) Participants took note of the increasing number of air pollution impact studies for the Asian region. Some of these studies directly addressed long range transport of air pollution, such as the impact assessment of the project Atmospheric Brown Cloud-Asia (ABC Asia). These assessments had included air pollution effects on human health, ecosystems, and crops, but there may be a need also to assess other effects such as effects on radiative forcing and climate change, water quality and quantity, and key socio-economic factors. Further cooperation provided an opportunity to bring together the effects-oriented research communities under the Asian networks and the Convention’s Working Group on Effects;

   (b) The workshop participants recommended further analysis of the multi-model experiment results, including investigation of seasonality, resolution dependence, linearity of concentration responses, sensitivities to individual precursors or components (nitrogen oxide (NO_x), volatile organic compounds (VOCs), methane (CH_4), carbonaceous particles, deposited nitrogen (N)), receptor or source analyses in specific regions (e.g. the Arctic, North Africa, the South Asia/East Asia border), the role of individual pollution transport events and contributions to high concentration episodes, impacts of different source types (e.g. separating dust, biomass burning and anthropogenic components of fine particles) and the role of stratosphere-troposphere exchange.

9. Conclusions from the session on ozone and aerosol observations:

   (a) Participants acknowledged that several Asian networks and research studies in the EANET area have provided and would continue to provide high quality monitoring data for ozone and aerosols. New innovative methods, such as unmanned instrumented aircrafts and ground-based lidar systems, have also been used to obtain detailed in-situ and vertical profiles of air pollution to be used for atmospheric process studies. Efforts were ongoing through the Task Force’s project to develop a global database of ground-based observations (EBAS-HTAP) and through the International Geosphere-Biosphere Programme/International Global Atmospheric Chemistry (IGBP/IGAC) initiative on an Asian observation database to make these observations available to larger communities for model evaluation and assessments of spatial and temporal distributions;
(b) Participants recommended that the Task Force and Asian networks should facilitate a continued dialogue between data providers and users to improve comparability of data sets.

10. Conclusions from the session on mercury observations:

   (a) Participants took note that Asian sources of mercury corresponded to about 50 per cent of the global emissions and that estimates of emissions from some of the major sources such as power plants still were uncertain. It was further noted that long-term monitoring and mercury speciation studies had taken place in several Asian countries and had demonstrated long range transport in the region and negative effects on waters and fish used for human consumption. Participants concluded that mercury observations from long-term monitoring and from individual projects clearly demonstrated that mercury was a persistent pollutant in Asia and that the regional sources contributed significantly to global pollution;

   (b) Participants recommended increasing international cooperation to characterize regional and global nature of problem, linking monitoring, modelling, and emissions of this pollutant. They also noted an additional need to obtain detailed and comparable speciated measurements for mercury. There was substantial potential to establish further cooperation in Asia to contribute to the HTAP 2010 assessment report. The regional efforts would also benefit by connecting to the UNEP Mercury Fate and Transport Research Partnership, the Ninth International Mercury Conference to be held June 2009 in China, and the Group on Earth Observations project on Global Mercury Monitoring and Modelling.

11. Conclusions from the session on emissions and projections:

   (a) Participants took note of the increased efforts to develop emissions inventories in Asia, particularly addressing major sources and specific characteristics of emissions in developing countries and emerging economies. It was noted that many countries projected increased emissions from transport and industrial and energy production over the coming years and decades. It was further noted that efforts had been made to evaluate and validate the emission inventories for the region with the aid of models and observations;

   (b) Participants recommended that satellite and ground observations be used to validate, improve, and update emissions inventories. Improvements should also incorporate “local knowledge” of the sector and country-specific characteristics of (anthropogenic) sources and abatement technologies and factors related to economic development. Forest fires, agricultural burning and residential heating and cooking play key roles for local and regional pollution in Asia. The new global emission database developed under the Task Force (EDGAR- HTAP) combines officially reported data and best available expert estimates of emissions from research
projects. Participants recommended that this approach also be applied for Asian emissions, although further work was needed on the temporal and spatial allocation of emissions in Asia. Further improvements could be facilitated by opportunities for consultation in future workshops.

II. WORKSHOP FOCUSING OF EASTERN EUROPE, CENTRAL ASIA AND THE ARCTIC

12. The workshop focusing on Eastern Europe, Central Asia and the Arctic (Saint Petersburg, Russian Federation, 1–3 April 2009)) was organized by the Task Force in conjunction with the 12th All-Russian Conference “Regulatory-methodological, technical and information support of the air protection activity” and in coordination with the Task Force on Emission Inventories and Projections, the Arctic Monitoring and Assessment Programme (AMAP) and the UNEP Stockholm Convention on Persistent Organic Pollutants (POPs) environmental pollution monitoring activities. Other side meetings took place for the coordination of related activities in the region. The workshop was hosted by the Russian Scientific Research Institute for Atmospheric Air Protection (FSUE SRI Atmosphere) in Saint Petersburg.

A. Attendance

13. The meeting was attended by more than 90 experts including those from the following Parties: Azerbaijan, Belgium, Belarus, Canada, Czech Republic, Denmark, European Community, Finland, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Netherlands, Norway, Republic of Moldova, Russian Federation, Slovakia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, United States and Uzbekistan. In addition, experts from the following countries not Party to the Convention attended: India, Nepal, Pakistan and Thailand. Representatives of the Meteorological Synthesizing Centres East and West (MSC-East and MSC-West), CCC, Centre on Emission Inventories and Projections (CEIP) and the Centre for Integrated Assessment Modelling (CIAM) of EMEP participated, as did representatives of the Stockholm Convention, AMAP, the European Environment Agency (EEA) and JRC.

B. Organization of work


C. Workshop objectives

15. The specific objectives of the workshop were to present:
(a) The current status on air pollution emission inventories for the countries of Eastern Europe, Caucasus and Central Asia (EECCA) and to provide guidance to enhance technical and scientific cooperation on emission inventories and projections;

(b) Information on sources, observations and impacts of air pollution in the Arctic;

(c) Ongoing efforts in the global assessment of intercontinental transport of POPs and mercury and plan for the HTAP 2010 assessment for these pollutants.

D. Summary of conclusions

16. Conclusions of the session on emission inventories and projections in EECCA countries:

(a) Participants noted that emission inventories have been developed and were regularly updated by many EECCA countries, including Belarus, Kazakhstan, Kyrgyzstan, Russian Federation and Ukraine. Progress was considered to be due in part to the implementation of the UNECE CAPACT¹ project and bilateral cooperation projects, but also to national priorities to use the emission inventories in air pollution management. It was noted that reported emissions of some pollutants were going down in many EECCA countries, but also that emissions remained very significant from agricultural burning. The quality of the emission inventories depended on the quality of the basic statistics and reported emissions for larger installations. Significant gaps in the data had been identified and these were due to a lack of basic information and a lack of completeness in reporting. Few attempts had been made so far to evaluate and validate the emission inventories by independent means, such as inverse modelling and field observations;

(b) Participants recommended that all Parties to the Convention report their emission inventories to CEIP, even if these were not yet covering all sectors, pollutants, or geographical scope of the countries. Such reporting allowed the EMEP bodies to engage with the Parties and to provide further guidance to improve the inventories. Participants also encouraged further efforts to improve the completeness and accuracy of the national emission inventories and

cooperation and exchange of gained experiences and best practices in the region and with other Parties.

17. Conclusions from the session on sources of Arctic air pollution:

   (a) Participants noted that observations and modelling showed that air pollution in the Arctic depended to a significant degree on emissions outside the Arctic. Episodic high levels of long range pollution transport from agricultural burning (e.g. from smoke, black carbon (BC) and organic carbon (OC)) in the Russian Federation, Central Asia and South-East Asia had been observed. Major forest fires in the sub-Arctic boreal region also contributed to haze air pollution in the Arctic. Mercury and POPs pollution in the Arctic has been found to be due to contributions from North America, Europe, and Asia. Climate change observed in the Arctic was due to a large degree to increased levels of air pollution, such as from BC and ozone, both of which were transported over large distances. Shipping and industrial activities in the Arctic were also important sources of regional air pollution and may become more dominant in the future if these activities grow according to recent AMAP and Intergovernmental Panel on Climate Change (IPCC)-developed scenarios;

   (b) Participants recommended further assessment of the emissions of ozone and particle precursors, BC/OC, mercury and POPs in the sub-Arctic region that contributed significantly to Arctic air pollution and regional climate change. They further recommended that the Task Force coordinated efforts to assess intercontinental transport of air pollution with the ongoing efforts of AMAP, UNEP and other relevant programmes.

18. Conclusions from the session on air pollutants in the Arctic:

   (a) Participants noted that EMEP and national monitoring was taking place in the Arctic and in the European and North American sub-Arctic regions. Several of these stations were cooperative efforts between EECCA countries and other Parties. It was also noted that monitoring station coverage was very sparse in the East European and Asian regions. For the stations operated in EECCA countries, few data were reported to EMEP and not all pollutants were covered. Participants noted that impact of air pollution in the Arctic related to increased levels of haze, radiative forcing, POPs and mercury. In particular, the short-term effect of air pollutants such as ozone and BC on the Arctic’s climate had accelerated in the last decade and may lead to a complete loss of Arctic sea ice much earlier than projected through the effect of long-lived greenhouse gases alone. They also noted that EMEP activities and other major international research programmes such as POLARCAT were presently studying the transport pathways of air pollution in the Arctic;
(b) Participants recommended that monitoring data from the Arctic and sub-Arctic regions be reported to CCC as a first step to enhancing cooperation and exchanging experience. In the medium term, it was seen as important to establish good coverage of level 1 and 2 EMEP monitoring stations in the EECCA countries and that relevant monitoring was made for ozone, speciated particles, POPs, mercury and greenhouse gases. It was further recommended that the ongoing Arctic research projects be explored fully in the HTAP 2010 assessment report.

19. Conclusions from the session on assessment of POPs transport:

(a) Participants discussed the information needs for the HTAP 2010 assessment report. Historical emissions, modelling of the recirculation between the air and surfaces, and observational data from different environmental media would be needed. It was noted that very few global emission datasets exist for POPs, and that most of those that do exist were for substances that now were heavily controlled. The geographical coverage of air and deposition monitoring was poor and available for a few components only. A plan for the HTAP model experiments was presented along with first results from three models for polychlorinated biphenyls (PCBs). The agreement between the models was within a factor of four, and the preliminary source-receptor relationships showed that these POPs were transported between continents to a significant degree;

(b) Participants recommended that the Task Force make the most use of existing data and continue efforts to improve inventories and monitoring globally so that consistent and comparable data could be obtained. In particular, monitoring through simple devices such as passive samplers should be explored to improve global coverage. The use of inverse modelling to combine models and observations to assess the POPs emissions and the use of models to identify the potential for long range transport and persistence of individual POPs in the environment should be explored further. The Task Force’s work on POPs should be closely coordinated with similar efforts by AMAP, the Stockholm Convention Global Monitoring Plan and individual research projects, e.g. those of the Research Centre for Environmental Chemistry and Ecotoxicology and the model network for monitoring of persistent organic compounds in the air using the passive air sampling technique (RECETOX/MONET) and the Global Atmospheric Passive Sampling (GAPS) network. Finally, the participants recommended that the HTAP multi-model experiments for POPs should proceed according to the plan.

20. Conclusions from the session on assessment of mercury transport:

(a) Participants discussed the information needs for the HTAP 2010 assessment report. Historical emissions, modelling of the recirculation between the air and surfaces, and observational data from different environmental media would be needed. They noted that several
global mercury inventories have been developed recently and that further efforts were planned to harmonize these. However, the participants concluded that there still was a poor global coverage of air concentrations and deposition monitoring, as well as of representative measurements in other media and biota. For some specific emission sources, e.g. natural sources, there were large uncertainties. A plan for the further HTAP multi-model experiments was presented along with the first results from four models. The models showed similar results for mercury concentration in air, but much larger variability for mercury deposition. The source-receptor relationships showed that mercury was transported between the continents to a significant degree;

(b) Participants recommended that efforts be made to secure monitoring of speciated mercury in air and deposition and in remote regions globally. Process-oriented field campaigns were suggested to improve our understanding of individual sources, atmospheric chemistry and deposition processes. Finally, the participants recommended that further efforts to harmonise emission inventories and the HTAP multi-model experiments proceed according to plan.

III. WORKSHOP ON REGIONAL-GLOBAL AND AIR QUALITY-CLIMATE LINKAGES

21. The workshop on regional-global and air quality-climate linkages was organized jointly by the Task Force on Hemispheric Transport of Air Pollution and the Task Force on Measurement and Modelling (Paris, 17–19 June 2009). The workshop was hosted by the French National Institute for Environmental Technology and Hazards (INERIS), with the support from the French Agency of Environment and Energy Management (ADEME).

A. Attendance

22. It was attended by more than 110 experts. Participants came from the following Parties to the Convention: Azerbaijan, Belgium, Canada, Croatia, Czech Republic, Cyprus, France, Germany, Italy, Netherlands, Norway, Poland, Russian Federation, Slovakia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, United States, Uzbekistan and the European Community. From outside the UNECE region, experts from Argentina, Bhutan, China, India, Japan, Nigeria, Nepal, Pakistan and Thailand participated. Representatives of the JRC, WMO, CIAM, CCC, and MSC-E and MSC-W also participated.

B. Organization of work

23. The workshop was chaired by the two Co-Chairs of the Task Force on Hemispheric Transport of Air Pollution.
C. Workshop objectives

24. The specific objectives of the workshop were to present and discuss:

(a) Methodological issues in linking regional- and global-scale air quality models;
(b) The impacts of climate change on air quality;
(c) The impacts of air pollution on climate change;
(d) The implications of these linkages for future work.

D. Summary of conclusions

25. Conclusions from the session on methodological issues in linking regional and global-scale air quality models:

(a) Participants noted that recent studies using one-way coupling of global and regional models had identified similarities and differences in the import and export of pollution, which may be due to differences in model temporal and spatial resolutions, transport parameterizations, chemical mechanisms or emissions inventories. The influence of upwind and above-surface air pollution on surface ozone trends was discussed. Participants also noted ongoing efforts to develop internally consistent multi-scale models;

(b) Participants recommended that the use of nested or zoomed models representing the regional and global scales be explored in more detail using model intercomparisons (including process analysis) and evaluations comparing to observations. Such studies should be performed for different regions in the Northern Hemisphere and should be summarized in the HTAP 2010 assessment report.

26. Conclusions from the session on the impacts of climate change on air quality:

(a) Participants discussed how changes in climate and climate variability may influence air quality regionally and globally, as well as the potential for long range transport. Important feedback mechanisms between climate change and air pollution such as the temperature effect on biogenic VOCs emissions and particulate matter-cloud interactions were identified. Participants found that a changed climate may influence both the chemical processes, such as reaction rates and chemical balances, as well as the physical processes, such as advection and dispersion, frequency of inversions, radiation fields, clouds and precipitation, and storm tracks. Participants noted that analysis of air pollution and climate records in most regions indicated that measures taken to reduce ozone pollution have been offset by a changed climate, a phenomena known as the “climate change penalty”.

The future climate scenarios examined so far indicated that
regional emissions would have a slightly stronger influence on ozone regionally, whereas the long-range influence would be slightly weakened. Participants concluded that future scenarios were influenced by projected changes in carbon dioxide (CO$_2$) concentrations, air pollutant emissions from natural and anthropogenic sources, and changed land use, including changes in albedo and surface structure;

(b) Participants recommended continued efforts to analyse air pollution and climate records so that a better understanding might be obtained of the interlinkages. Such analysis should be made at both the regional scale and hemispheric scale. Coordinated experiments needed to be pursued to highlight the two-way interdependence of air pollution and climate change, taking into account other major global changes. Given the relative weakness of the climate change signal in model experiments, initial studies should explore relatively large climate perturbations, e.g. the Special Report on Emissions Scenarios (SRES) A2 scenario.

27. Conclusions from the session on the impacts of air pollutants on climate change:

(a) The co-benefits for air quality and climate change mitigation of reducing emissions particular air pollutants was discussed, with a particular attention to black carbon (BC). The strong warming potential of BC was emphasized, and the fact that BC emissions per capita in several world regions was more similar than for CO$_2$ was noted. Participants noted the cooling effect of sulphur aerosols and that the total climate effect of aerosols was strongly determined by the effectiveness of measures to abate the different chemical components of ambient particles. It was also noted that air pollution abatement was of high relevance in Asia due to its severe and widespread impact on human health. However, global air quality simulations showed mixed skills in representing a limited set of ozone observations in India. Several new data sets on aerosol parameters in India and China were presented, which was seen as a welcome addition to the otherwise very limited data set in these regions. Systematic (methodological) evaluations of the relationships between emissions of specific components, emission sectors, source locations, and climate impacts (e.g. temperature change) were presented. Nitrogen oxide emissions were shown to have a short-time scale effect on ozone and a long timescale impact on methane, which may lead to different time-integrated forcing depending on the timescale considered. Since in all cases there may be a strong model dependency of these results, a coordinated effort to explore the robustness of results was needed. The potential to derive new climate relevant information from newer generation of satellite products, and especially through the combination of different instruments (e.g. the Cloud-Aerosol Lidar with Orthogonal Polarization (CALIOP) and the Moderate Resolution Imaging Spectroradiometer (MODIS)) showed promising results. Furthermore, the integration of fused observations (both space and surface based) into models was shown to lead to substantially improved model simulations of air quality, which would also improve estimates of climate impacts;
(b) Participants recommended further quantification of the direct and indirect effects of air pollutants on climate change, particularly related to emissions of methane and BC. Further work was also seen as necessary to improve emissions estimates globally as well as to improve the possibility of comparing model results to ground-based and satellite-based observations. The effects of NO\textsubscript{x} emissions on ozone and methane need to be studied with various models on different time scales so that the total effect on air quality and climate can be quantified.

28. Conclusions from the session on the impacts of air pollutants on climate change: further focus on ozone:

(a) Participants took note of the satellite observations of radiative forcing by ozone and particulate matter and the efforts to assimilate the observations in global circulation models (GCMs). The impacts of ozone on vegetation in Europe and on the global carbon cycle were discussed;

(b) Participants recommended that modellers need to exploit existing satellite observations to better understand processes that govern air pollution radiative forcing. Further work was seen as necessary to studying the coupling between air pollution and indirect effects, including feedbacks on chemistry as well as on the biosphere in a global perspective. It was considered important to further develop relevant metrics for air pollution effects on regional and global climate, such as radiative forcing (RF), global warming potential (GWP) or global temperature potential (GTP).

29. Conclusions on the status and planning of the future cooperative work:

(a) Participants took note of the progress of the different tasks designed by the Task Force on Hemispheric Transport of Air Pollution, such as the development of a global emission inventory database for the evaluation of models (EDGAR-HTAP), the development of a global database for ground-based (EBAS-HTAP) and satellite/airborne observations (GIOVANNI-HTAP), the further work on multi-model experiments and the efforts to improve the interoperability of the HTAP databases;

(b) Participants agreed to continue the efforts for accomplishing the different tasks and to integrate these tasks into the 2010 HTAP assessment report.
IV. ACTIVITIES FOR THE REMAINDER OF 2009 AND DRAFT WORKPLAN FOR 2010

30. A workshop of the Task Force extending over three days is tentatively being planned to be held from 11 to 13 November 2009 in Toronto, Canada. The workshop will be devoted to the drafting of the HTAP 2010 assessment report.

31. The main activities and time schedule proposed for 2010 are:

   (a) To pursue efforts to achieve an increased understanding of the role of hemispheric transport of air pollution, and in particular:

      (i) To continue to plan, conduct and analyse multi-model experiments to evaluate intercontinental transport;

      (ii) To provide inputs to the development of an improved emissions inventory for assessing intercontinental transport (EDGAR-HTAP), by incorporating emission estimates developed at the national and regional levels;

      (iii) To offer inputs to the development of reference databases of observational information from surface networks, aircraft campaigns and satellites;

      (iv) To support the development of an electronic information network to facilitate the integration and interoperability of relevant data on emissions, observations and modelling information for the assessment of intercontinental transport;

   (b) To organize a workshop, tentatively scheduled for early March 2010 in Brussels, for the final drafting of the HTAP 2010 assessment report;

   (c) To organize its annual meeting in late May/early June 2010, which will focus on the draft HTAP 2010 assessment report;

   (d) To organize a workshop in fall 2010;

   (e) To deliver the HTAP 2010 assessment report addressing particulate matter and ozone, mercury and POPs;
(f) To continue the cooperation with the EMEP centres and individual Convention task forces, including the Task Force on Measurement and Modelling and the Task Force on Emission Inventories and Projections;

(g) To further pursue outreach efforts directed at experts in countries outside the UNECE region and international organizations dealing with global air pollution.