



Task Force on Hemispheric Transport of Air Pollution

Workshop on Emissions Inventories & Future Scenarios

Hosted by Tsinghua University's
Research Institute for Environmental Sciences and Engineering
Beijing, People's Republic of China
18-20 October 2006

Task Force Co-Chairs

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European Commission

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<http://www.htap.org>

Overview of Presentation

- Introduction to the LRTAP Convention & TF Hemispheric Transport of Air Pollution
- Overview of TF HTAP Assessment & Cooperative Research Activities
- Objectives and Structure of This Workshop

Introduction to TF HTAP

CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION

- Adopted in 1979, the first multi-lateral agreement on air pollution
- Created a framework on which has been built eight Protocols, all in force as of May 2005.
- The Protocols have aimed to increase ambition levels in a stepwise manner.
- Day to day activities supported by a Secretariat at the UN Economic Commission for Europe
- <http://www.unece.org/env/lrtap/>

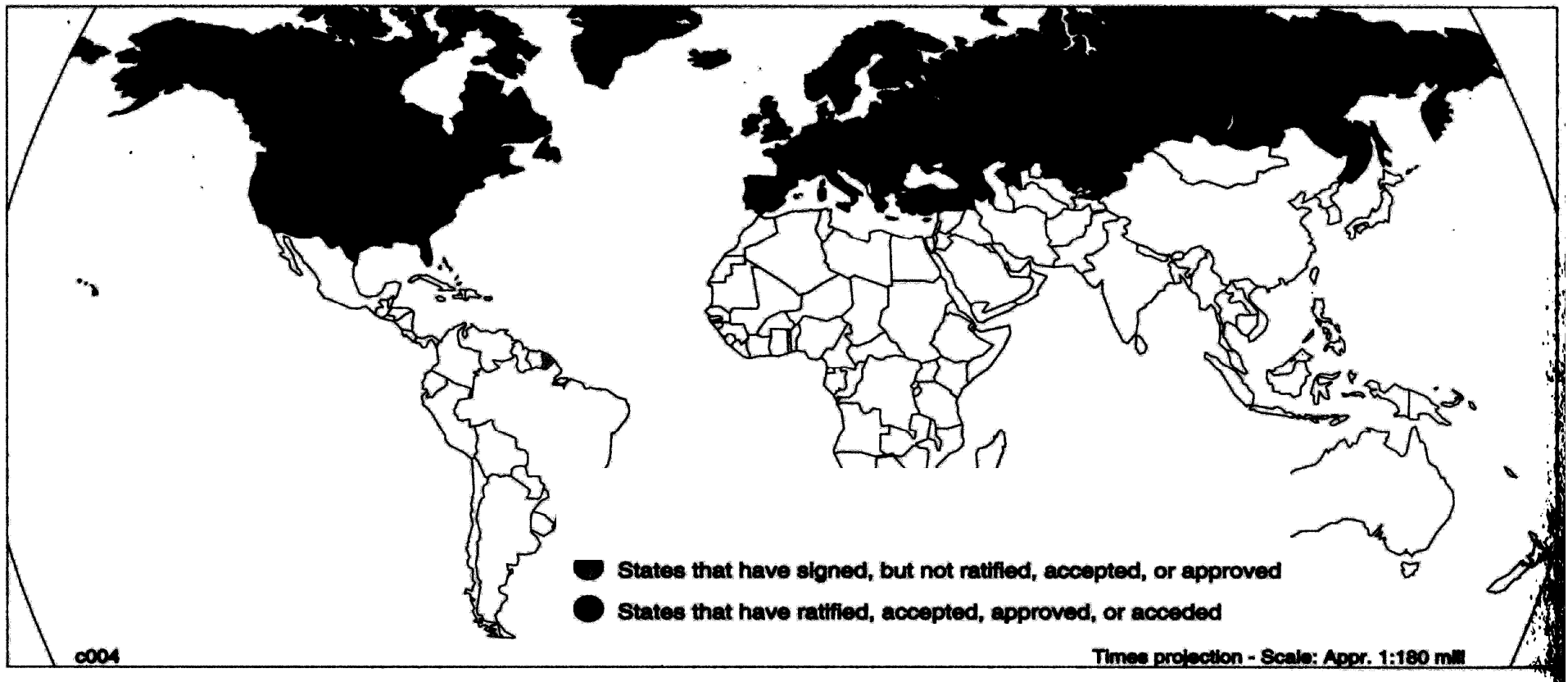
UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE



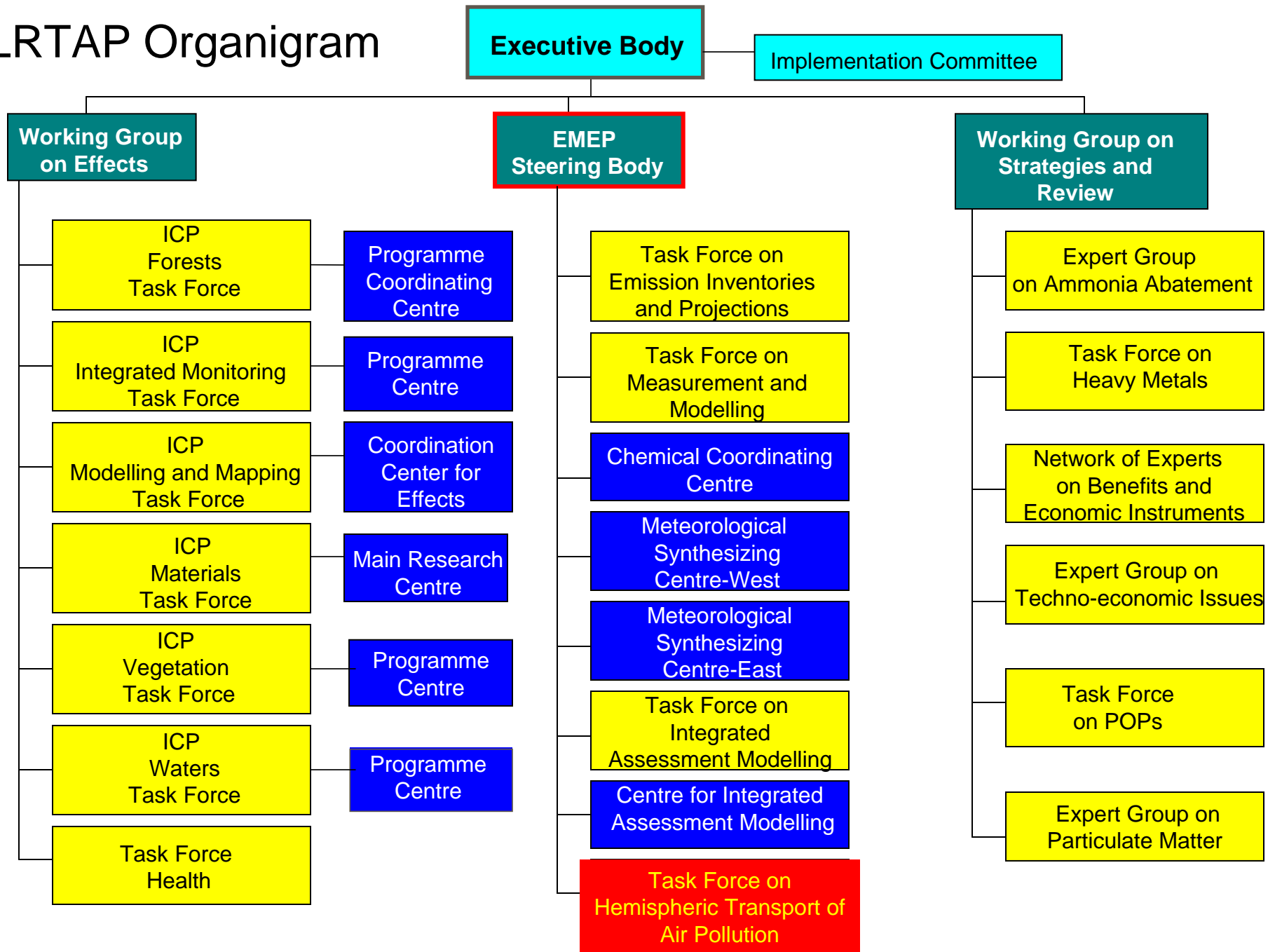
Introduction to TF HTAP

CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION

49 Parties in Europe, North America and Central Asia



CLRTAP Organigram





Task Force on Hemispheric Transport of Air Pollution

The Task Force is charged to “plan and conduct the technical work necessary to:

- develop a fuller understanding of the hemispheric transport of air pollution ...
- estimate the hemispheric transport of specific air pollutants for the use in reviews of protocols to the Convention
- prepare technical reviews thereon for submission to the Steering Body of EMEP”

The Task Force is encouraged to engage relevant experts from non-UNECE countries.

Policy-Relevant Science Questions

1. How does hemispheric transport affect air pollution?
2. How much do emissions in one country or region affect air pollution in another country or region?
3. How confident are we of the results and what is our best estimate of the uncertainties?
4. How will changes in emissions in one country or region affect air pollution in another country or region?
5. How may the source-receptor relationships change over the next 20 to 50 years due to changes in emissions?
6. How may the source-receptor relationships change due to climate change?
7. What efforts are needed to develop an integrated system of observation data and models?

Introduction to TF HTAP

A Path to a 2009 Assessment

Focused Workshops

Building Consensus

TF Meetings

Reviewing Results, Planning

2005 June

Science Questions,
Brussels

2006 Jan

New Research

Modeling, *Washington*

June

& Report Writing

Hg/POPs, CH₄, *Moscow*

Oct

Emissions, *Beijing*

2007 Jan

Integrated Observations,
Geneva

May-
June

Interim Report to Protocol
Review, *London*

Oct

[Modeling, *Jülich*]

2008 Jan

?

June

[Tropics, Climate]

Oct

?

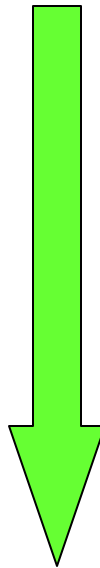
2009 Jan

?

June

1st Assessment Report

?



Progress to Date

Model Intercomparison and Evaluation

- **4 Phases of Experiments**
 - Regional Emission Sensitivities
 - Artificial Tracers
 - Pollutant Specific Experiments
 - Uncertainty Characterization
- **JRC Ispra coordinating data exchange**
 - <http://aqm.jrc.it/HTAP/>
 - Further development of JRC's EuroDelta Tool
- **Standard naming convention for atmospheric chemistry**
 - Building upon existing NetCDF/CF convention
 - See http://wiki.esipfed.org/index.php/Air_Quality/Chemistry_Naming_Conventions
- **Further face to face discussions to be held in conjunction with**
 - Integrated Observations Workshop, Geneva, 24-26 Jan 2007
 - [Modeling Workshop, Julich, Oct 2007]

Progress to Date

Model Intercomparison and Evaluation

Experiment	2006	2007	2008	2009
Experiment Set 1: Delta Emission experiment				
1.1 Define experiment, prepare input/output	■			
1.2 Run experiments		■		
1.3 Analyse experiment for Interim report in 2007		■		
INTERIM REPORT		■		
Experiment Set 2: Artificial Tracer experiment				
2.1 Define experiment, prepare input/output		■		
2.2 Run experiments		■		
2.3 Analyse experiment for publication together with exp. 1		■	■	
Experiment Set 3: Parallel detailed experiments for Mercury, Ozone, Aerosols, linkage to campaigns				
3.1 Define experiment, prepare input/output		■		
3.2 Run experiments		■	■	
3.3 Analyse experiment for publication		■	■	
Experiment Set 4: Further assessment of uncertainties in source receptor relationships including future emission scenarios				
4.1 Define experiment, prepare input/output			■	
4.2 Run experiments			■	
4.3 Analyse experiment for Assessment report			■	
4.4 Publish scientific results				■
TF HTAP ASSESSMENT REPORT				■

Expectations for Assessment Products

TF HTAP Assessment Products

2009 Assessment Report

- State of knowledge concerning intercontinental transport of air pollutants in the Northern Hemisphere
- Covering all pollutants of interest under the LRTAP Convention
- Addressing identified policy-relevant science questions

2007 Interim Report

- Significance of intercontinental transport of air pollutants within the Northern Hemisphere for attaining the objectives of the 1999 Gothenburg Protocol

Expectations for Assessment Products

Content of the Gothenburg Protocol Review

(to be completed 12/2007)

- I. Introduction
- II. Concentration and Deposition Levels
- III. Effects on Human Health, Natural Ecosystems, Materials, and Crops
- IV. National Emission Ceilings
- V. Emission Limit Values
- VI. *The Role of Hemispheric Transport***
- VII. Relation to Climate Change Issues
- VIII. Particulate Matter
- IX. North America
- X. Progress Towards Achieving the Objective of the Protocol
- XI. Conclusions

Expectations for Assessment Products

The 2007 TF HTAP Interim Assessment Report

0. Executive Summary
1. Introduction
2. Conceptual Overview of Hemispheric or Intercontinental Transport Processes
3. Observational Evidence & Capabilities Related to Hemispheric or Intercontinental Transport
 - a. Surface Networks
 - b. Field Campaigns
 - c. Satellite Observations
4. Emission Inventories and Projections
5. Estimates of Hemispheric or Intercontinental Transport from Global, Hemispheric, and Regional Models
 1. Methods for Diagnosis or Quantification of Transport
 2. Ozone
 3. Aerosols
6. Integration of Observations, Modeling, and Emissions Information
7. Activities of the Task Force
8. Conclusions and Recommendations

Expectations for Assessment Products

The 2007 TF HTAP Interim Assessment Report

June 2006	Nominations for Lead Authors
October 2006	Final List of Lead Authors Emissions Workshop (opportunity for some discussion)
November 2006	Outline of Chapters submitted to WGSR
January 2007	Observations Workshop (opportunity for some discussion)
March 2007	Drafts of Chapters due to Co-Chairs
April 2007	Full Draft circulated to TF
June 2007	Full Draft discussed by TF
September 2007	Full Draft submitted to EMEP SB and Exec Sum to WGSR
December 2007	Full Draft and Exec Sum submitted to EB

This Workshop

Objectives

- Identify the state of knowledge of emissions and emission projections relevant for understanding intercontinental transport
- Evaluate the availability, consistency, and uncertainty in current emissions information
- Provide guidance on how emissions may be assessed in different parts of the hemisphere
- Evaluate the adequacy of existing global emission projections
- Identify methods and sources of information for improving global emission projections
- Provide advice on the emission inventories and projections to be used in TF modeling and assessment efforts
- Reach out to experts on emission inventories and projections in countries outside the UNECE

This Workshop

Structure and Format

The workshop is organized into four sessions:

1. Status of global and regional emissions inventories
2. Evaluation of inventories using observations
3. Future emission projections and scenarios
4. Emission inventories for air quality management and public information

Conclusions and Recommendations

Each session will conclude with a discussion of conclusions and recommendations.

The conclusions will inform the TF HTAP assessment reports and future cooperative analyses.

Post Workshop Discussion

Objectives of Discussion with non-UNECE Participants

- Discuss how to facilitate participation in the Task Force from non-UNECE countries to ensure the development of a credible scientific assessment of the intercontinental transport of air pollutants in the Northern Hemisphere
- Discuss opportunities for non-UNECE participants in the Task Force to take advantage of the tools and expertise from UNECE participants to help build technical capacity in their countries

