



Task Force on Hemispheric Transport of Air Pollution

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Conclusions and Recommendations

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Status of global and regional emissions inventories: Conclusions

Gridded regional and global emission inventories exist for many pollutants (SO₂, NO_x, VOC, NH₃, OC, BC, PM, CO), but the quality of EI vary largely and is poor for some regions/sectors (factor 2 or more) due to lack of relevant EFs or activity data.

Major uncertainties in EI are likely for biomass burning, artisanal industry, residential combustion as well as in EI of VOCs species.

EI may be improved through systematically addressing the main relevant uncertainties. This can be done through (direct and inverse) modeling of air quality field studies and laboratory tests. This includes also obtaining better relevant technology-based EFs and activity data (e.g. completeness).

National and regional EI are relevant also the intercontinental transport, but may need to be complemented by some source categories that are relevant only for the intercontinental transport of air pollution (e.g. marine emissions, natural emissions (CH₄, NO_x), agricultural emissions, and national specific emissions (e.g. biomass burning in remote areas and CO)).

Status of global and regional emissions inventories: Recommendations

TFHTAP should make use of existing EI produced within the CLRTAP and other organizations (national governments, GEIA, EDGAR, IPCC, ABC, GAPF,...).

TF HTAP, in coordination with other efforts (e.g., GEIA, EDGAR, GAINS, GAPF, NEISGEI, EANET, CAI-Asia), should work to facilitate the inclusion of national or regional emissions inventories (with local knowledge) into global emission inventories.

TF HTAP should make an effort to compile EFs and source testing information for sources not covered by existing EF databases and guidance documents, which can be used by the community to improve emission estimates. This can be done in cooperation with other efforts (e.g., GAPF, TFEIP, EANET, CAI-Asia).

TFHTAP modeling efforts should help identify the emissions estimates and uncertainties that are most important for understanding intercontinental transport and hemispheric pollution and needed temporal and spatial resolution of emission estimates.

Evaluation of inventories using observations: Conclusions

To evaluate the accuracy of emissions estimates, it is necessary to compare the inventories to emissions estimates, ratios, and trends derived from both ambient observations (surface, in situ, and satellite-based) and atmospheric models in an iterative process.

Observations of atmospheric composition from satellite-based instruments can provide useful information for evaluating emissions inventories. However, concentrations derived from satellite observations are dependent on assumptions that should be carefully evaluated.

Chemical speciation of VOC (and fine particle) observations can provide useful information for inferring emissions estimates, as speciation of emissions varies across source types.

Evaluation of inventories using observations: Recommendations

There are numerous sources of uncertainty in emissions inventories. The TF HTAP assessment and modeling efforts should work to evaluate how significant these uncertainties are for estimating source-receptor relationships and the impacts of changes in anthropogenic emissions on intercontinental and hemispheric scales.

Efforts to facilitate the integration of emissions, observations, and modeling information should be further explored at the TF HTAP's January 2007 workshop.

Further capacity building and improved data packaging is needed before satellite observations can be used widely to inform emissions inventory development. TF HTAP can be an advocate for such efforts.

Further capacity building may also be necessary in the area of surface and in situ observations, especially for chemical speciation measurements.

Future emission projections and scenarios: Conclusions

Few projections of traditional air pollutant emissions exist at the national or global scale. However, national projections of economic development may be used as a basis for emission projections. Detailed information on fuels and technologies used are needed.

Most economic sectors in the NH are projected to grow in the next decade. This population and GDP growth are major drivers for increased use of fuels for power production, increased transport activities and demand for agricultural and industrial products.

Air pollution emissions in BAU scenarios to 2030 are projected to decrease in Europe and NA, whilst projected to increase in Asia. However, on a per capita basis, emissions in Asia are not expected to increase to levels seen in NA and Europe.

International trade and subsequent freight movement (by ships, planes, trucks, and rail), as well as personal transport, are projected to increase strongly over the next decades. Emissions from transport and freight may increase to become a major/dominant source of SO₂ and NO_x in some regions.

Globally, CO₂ and CH₄ emissions are expected to continue to increase.

Future emission projections and scenarios: Recommendations

TFHTAP should take into account other efforts to develop future emission projections, including efforts by national governments, TFEIP, IPCC (National communications and AR5 preparation), GAINS, OECD, Project ABC, QUANTIFY, and others.

Shipping and aviation emissions are not well covered by national inventories. TFHTAP activities should focus on improving the inclusion of these sources in future emission projections, with benefits to the broader community.

TFHTAP should identify the magnitudes and distribution (spatial, vertical, temporal, and chemical) of expected emissions changes from available projections and evaluate how these types of changes will change estimates of source-receptor relationships on intercontinental and hemispheric scales.

TFHTAP should explore the uncertainty and bias in the projections and scenarios in order to get a view of a fuller range of possible futures.

TFHTAP should assess how the feasibility and costs of emissions reductions in different regions will change under different projections or scenarios.

TFHTAP should work with other existing efforts to develop capacity, and improve the projection methods, information exchange, transparency of future projections.

Emission inventories for air quality management and public information: Conclusions and recommendations

In many countries, high quality emissions data is coming from PRTR efforts. In some cases this covers many sources. Coverage of sources and pollutants varies.

TFHTAP should assess how these data can be used in assessing intercontinental transport and hemispheric pollution.

Differences in capabilities for developing emissions inventories across countries.

Making crucial links between institutions within countries, region, hemisphere, including national focal points, regulatory bodies, and research groups.

Thank you



The Chairman and the Co-chairs