FICAP

Forum for International Cooperation on Air Pollution

UNECE
Convention on Long-range Transboundary Air Pollution

NATUR VÅRDS VERKET
SWEDISH ENVIRONMENTAL PROTECTION AGENCY

UK Government

FICAP Prospectus

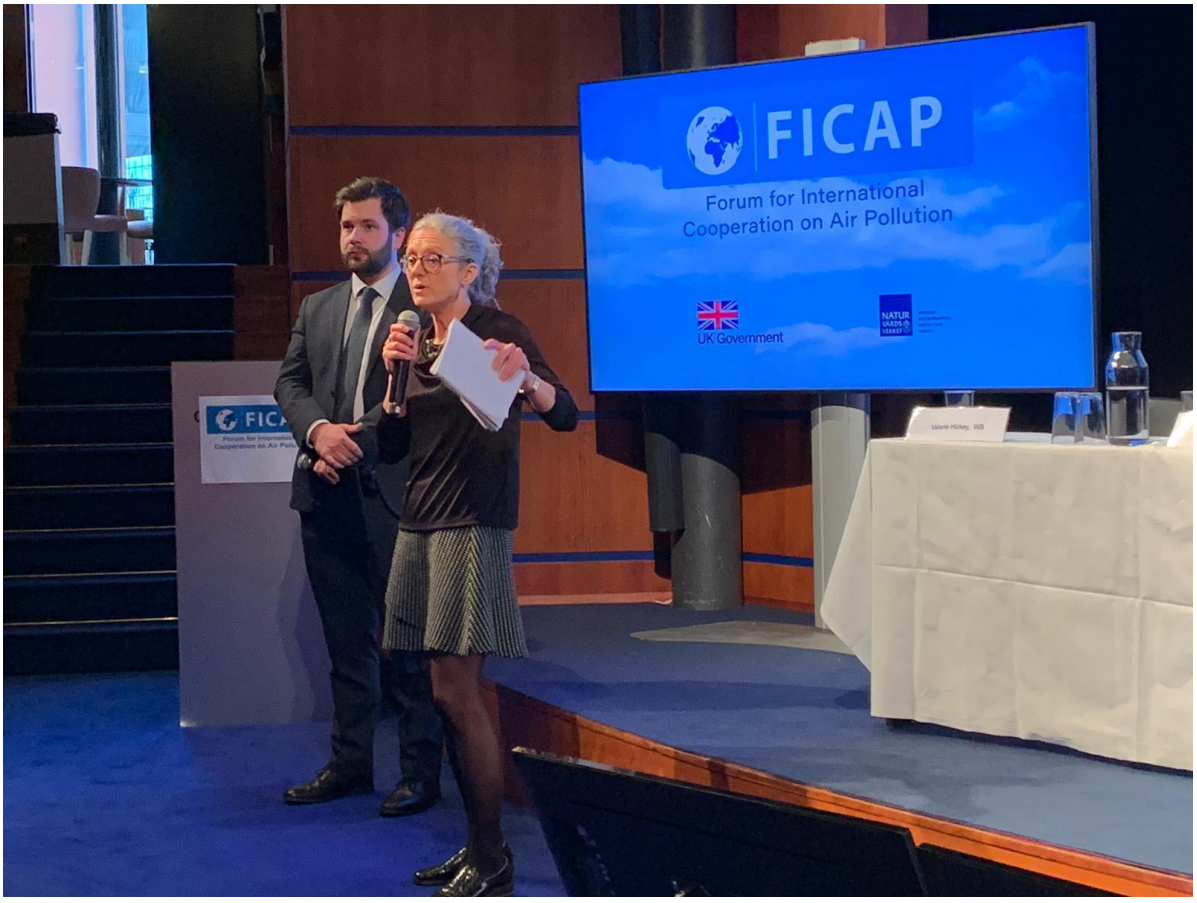
Contents

FICAP

Forum for International Cooperation on Air Pollution – co-chaired by UK and Sweden

The Forum aims to facilitate international exchange of information and mutual learning on both the scientific/technical and policy levels, and complement ongoing efforts by making the UNECE Air Convention's 45 years of experience, tools, methods and expertise available to other regions, countries and organizations.

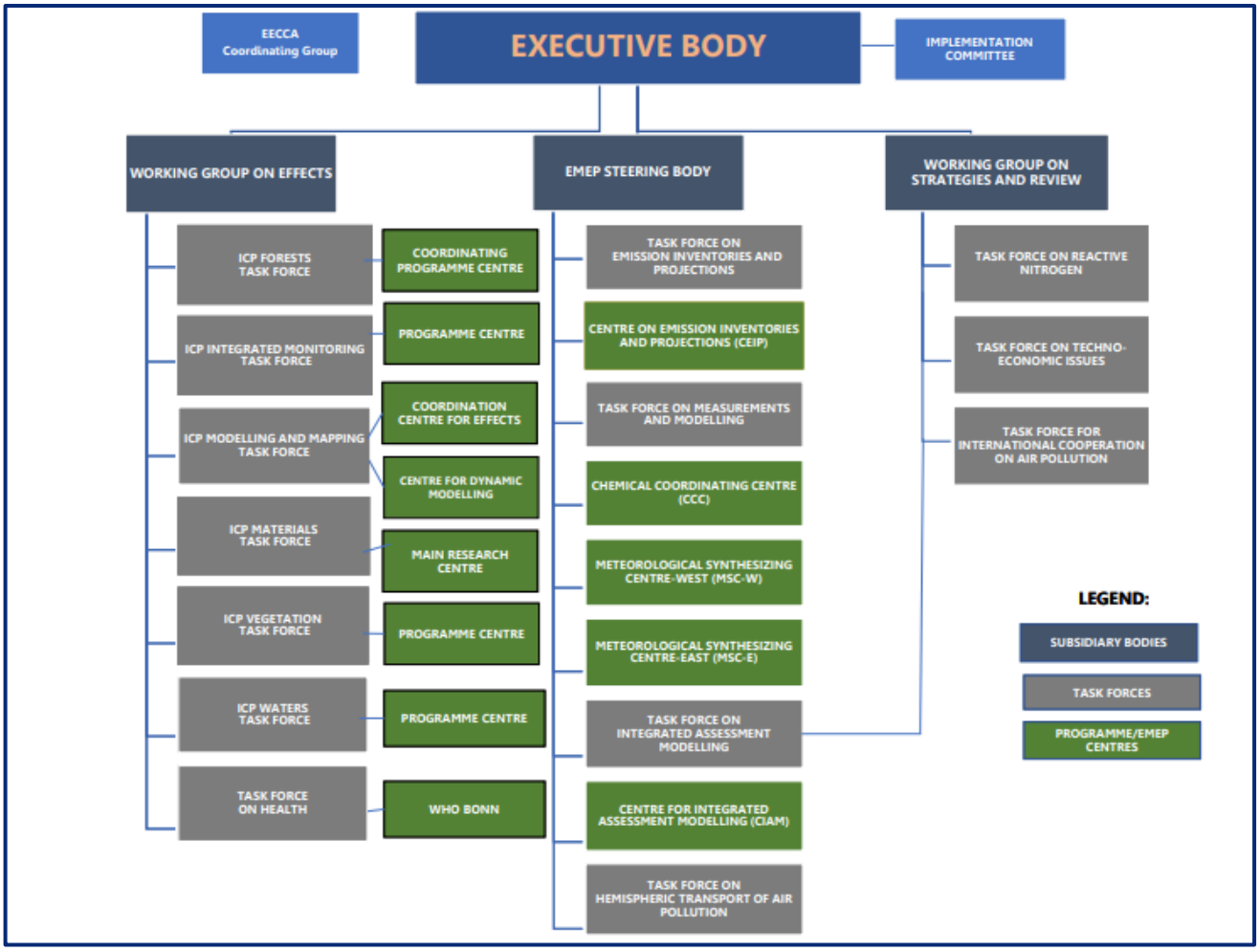
Website: www.naturvardsverket.se/en/ficap



UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP)

Task Forces and Centres

The work under the Air Convention is science-based and there are regular interactions between the Convention's science and policy bodies. The scientific and technical work is carried out by Task Forces (TFs), International Cooperative Programs (ICPs) and Centres that sit under the subsidiary bodies to the Executive Body. Each of these has their own remit specified in a mandate and biennial work plans to ensure consistency with the Convention's overall work program and timely input to ongoing and planned processes. Reports and other information on the work of the different groups can be found in the links provided in this Prospectus.



Working Group on Effects

ICP Forests

Website: Forests | UNECE

Objectives:

Monitor the effects of anthropogenic (in particular air pollution) and natural stress factors on the condition and development of forest ecosystems across Europe and beyond, and to contribute to a better understanding of cause-effect relationships in forest ecosystem functioning.

Knowledge and Expertise:

ICP Forests Expert Panels for individual topics, from atmosphere to soil: Bodies & Structure - ICP Forests (icp-forests.net)

Guidance and Tools:

ICP Forests Manual: ICP Forests Manual - ICP Forests (icp-forests.net) (with translation in Chinese and Russian for earlier versions). This can be applicable across the temperate forests. It may require adaptation for tropical environments.

Online tool for validation of visible foliar symptoms and pictorial atlas: Expert Panel on Ambient Air Quality - ICP Forests (icp-forests.net)

ICP Integrated Monitoring

Website: Integrated Monitoring | UNECE

Objectives:

Monitor the state of ecosystems (catchments/plots), their changes and effects of air pollutants and climate change from a long-term perspective, and to develop and validate models for the simulation of ecosystem responses.

Knowledge and Expertise:

ICP IM has long experience in monitoring air pollution effects in multiple mediums like forest, water, and soil. This long experience provides valuable insight into how to effectively monitor air pollution.

Guidance and Tools:

The technical handbook is extensive and provides well-established methods on how to monitor and how to evaluate the data: https://www.slu.se/en/Collaborative-Centres-and-Projects/integrated-monitoring/monitoring-manual/

ICP Modelling and Mapping

Website: Modelling and Mapping | UNECE

Objectives:

- determine receptor specific critical loads for indirect effects of the (long-term) deposition of various air pollutants and critical levels for direct effects of gaseous air pollutants;
- map pollutant depositions and concentrations which exceed critical thresholds; and
- establish appropriate methods as a basis for assessing potential damage, e.g. via dynamic modelling.

Knowledge and Expertise:

Guidance and Tools:

ICP Materials

Website: Materials | UNECE

Objectives:

Perform a quantitative evaluation of the effect of sulphur and nitrogen compounds and other major pollutants, including the effects of low concentrations of these pollutants on the atmospheric corrosion of important materials, and to assess the trends of corrosion and pollution.

Knowledge and Expertise:

Corrosion and degradation including soiling of all sorts of materials and the influence of the environment in urban, rural and industrial regions all over the world.

Development of international protocols (tools, methods) on how to perform corrosion experiments in the field and in the laboratory (developed by the ISO-international standardization organization).

Guidance and Tools:

ICP Vegetation

Website: Vegetation | UNECE

Objectives:

Quantifying the risks to vegetation posed by ozone pollution and the atmospheric deposition of heavy metals, nitrogen and persistent organic pollutants (POPs) to vegetation. In addition, it studies the interactive impacts of air pollutants (e.g. ozone and nitrogen) on vegetation in a changing climate, including impacts on biodiversity.

Knowledge and Expertise:

- Air pollution impacts on ecosystems;
- Interactive impacts of air pollutants and other stressors (e.g. climate change) on croplands and semi-natural vegetation;
- Evidence required to inform stakeholders about vegetation impacts from air pollutants;
- Setting of critical levels and loads for air pollutants - empirical critical loads for N, critical levels of ozone, ammonia (NH3) and nitrogen oxides (NOx);
- Mapping of exceedances of critical loads and critical levels of air pollutants;
- Recovery pathways in response to declines in some air pollutants and/or dynamics in response to changed atmospheric pollutant profiles;
- Deployment of (ozone) diffusion tubes to provide estimates of air pollutant concentrations;
- Running controlled experimental facilities with ozone to provide a platform for exploring ozone impacts on plants and plant communities.
- Using mosses as means to monitor heavy metals, persistent organic pollutants, and nitrogen;
- Methods to use mosses as indicators of microplastic atmospheric pollution.

Guidance and Tools:

Mapping Manual Chapter 3 (also on CCE website): https://icpvegetation.ceh.ac.uk/sites/default/files/FinalnewChapter3v4Oct2017_000.pdf

Mapping Manual additional background documents (Scientific Background Document B) (not on CCE website): https://icpvegetation.ceh.ac.uk/sites/default/files/Scientific%20Background%20document%20B%20June%202020.pdf

Scientific Background Document B contains information on parameterisation of the DO3SE model (https://www.sei-international.org/do3se) for additional crop and tree species. In addition, it describes developing areas of ozone research and the application of methodologies to further develop ozone critical levels for vegetation in the future.

DO3SE Model (held on SEI website): https://www.sei-international.org/do3se)

Online course: Ozone and tropical agriculture | UK Centre for Ecology & Hydrology (ceh.ac.uk)

Moss Manual (in English and Russian): https://icpvegetation.ceh.ac.uk/sites/default/files/ICP%20Vegetation%20moss%20monitoring%20manual%202020.pdf https://icpvegetation.ceh.ac.uk/sites/default/files/MOSS-MANUAL-RUS%20-2020-final.pdf

Ozone gardens and ozone injury experimental protocol: https://icpvegetation.ceh.ac.uk/sites/default/files/ICPVegetation_OzoneGardensandAppprotocol_2018_Final.pdf

Ozone App:

https://icpvegetation.ceh.ac.uk/get-involved/ozone-injury
https://apps.apple.com/gb/app/ozone-injury/id1437895876
https://play.google.com/store/apps/details?id=uk.ac.ceh.oza&hl=en_US&gl=US

Webinar Q&A / FAQs:
https://icpvegetation.ceh.ac.uk/sites/default/files/QA_webinar_FINAL.pdf

Ozone overview on YouTube:
https://www.youtube.com/watch?v=OBEJB-60jQU

Set of 4 factsheets on ozone, ozone impact, tropical ozone injury and management mitigation (in English):

- https://icpvegetation.ceh.ac.uk/sites/default/files/LegumesFactSheet_2020.pdf
- https://icpvegetation.ceh.ac.uk/sites/default/files/WP3.2_Tropical_ozone_injury_leaflet_final_0.pdf
- https://icpvegetation.ceh.ac.uk/sites/default/files/WP3.2_Management_mitigation_leaflet_ozone_final_0_0.pdf
- https://icpvegetation.ceh.ac.uk/sites/default/files/WP3.2_Ozone_formation_leaflet_final_0.pdf

Set of 4 factsheets on ozone, ozone impact, tropical ozone injury and management mitigation, in Spanish, French, Hindi and Russian:
https://icpvegetation.ceh.ac.uk/translatedfactsheets

Ozone injury guides on plantwise knowledgebank (5 from ICP Vegetation, including Asia, South America and Africa):
https://plantwiseplusknowledgebank.org/action/doSearch?AllField=ozone&SeriesKey=plantwise

ICP Waters

Website: Waters | UNECE

Objectives:

Collect and assess lake and stream monitoring data from an extensive network of monitoring sites. The monitoring includes both chemistry and biology. All major chemical constituents are included in the analytical programme. Biological data is derived from monitoring of fish populations, invertebrates and algae which show different tolerance to water chemistry conditions, among others. Data on changes in these populations can thus be important indicators of water quality. Chemical and biological data are used to assess temporal trends and spatial patterns, as well as evaluations of dose/response relationships.

Knowledge and Expertise:

Guidance and Tools:

Task Force on Health

Website: Health | UNECE

Objectives:

Quantify how long-range transboundary air pollution affects human health, and define priorities to guide future monitoring and abatement strategies. It also advises on monitoring and modelling activities to improve the quality of assessments.

Knowledge and Expertise:

Guidance and Tools:

EMEP Steering Body

Task Force on Emission Inventories and Projections

Website: Emission Inventories and Projections | UNECE

Objectives:

Support Parties in the reporting of air pollutant emissions and projections data to the Convention. This includes having responsibility for the development and technical content of the EMEP/European Environment Agency (EEA) Emission Inventory Guidebook used for the estimation and reporting of national emissions. The Task Force also provides a technical forum and expert network to harmonize emission factors, establish methodologies for the evaluation of emission data and projections and identify problems related to emissions reporting. The Task Force further supports Parties in their implementation of the reporting requirements specified in the Convention's emission reporting guidelines. It also focuses on data quality and inventory review.

Knowledge and Expertise:

Guidance and Tools:

EMEP/EEA Emissions Inventory Guidebook. This is a reference manual of AQ emission estimation methodologies that is used by many organisations and individuals beyond the geographical extent of the CLRTAP.

Task Force on Measurements and Modelling

Website: Measurements and Modeling | UNECE

Objectives:

Support the EMEP Steering Body and its Bureau by reviewing and assessing the scientific and operational activities of EMEP related to monitoring and modelling; evaluating their contribution and support to the effective implementation and further development of the Protocols; and drawing up specific proposals for the EMEP workplan.

Knowledge and Expertise:

We have created a website where the WGE is presented in themes (rather than following the WGE organisational structure) www.UNECE-wge.org. The web site has been constructed with people from the outside of the Air convention in mind.

Guidance and Tools:

It is not an activity of CDM, but the Critical Loads Mapper Tool developed at US EPA is a great source of inspiration for other regions. (www.epa.gov/air-research/critical-loads-mapper-tool)

Task Force on Integrated Assessment Modelling

Website: Integrated Assessment Modeling | UNECE

Objectives:

Through computer models, bring together information gathered from the Parties and from other Convention bodies on cost-effective emission control strategies. It provides regular reports to the negotiating bodies of the Convention to assist in the development of potential future legal instruments and to regularly review the existing protocols.

Knowledge and Expertise:

Basic principles of integrated assessment modelling in support of negotiations on transboundary policy.

GAINS model capacity building.

Opportunities to work on cleaner air in cities, including the relative importance of pollution sources inside and outside the city.

Guidance and Tools:

GAINS User guide: Microsoft Word - User_Guide_v2.docx

GAINS energy data aggregation: Aggregation of energy data in GAINS

Guide to Assessing the Cost of Inaction: Guide to Assessing the Costs of Inaction of Tackling Air Pollution-IIASA - Advance copy-May2023-f.pdf

WB Report Striving for Clean Air: Striving for Clean Air: Air Pollution and Public Health in South Asia

PB40 Air Pollution: PB40 Airpollution FINAL OCTOBER 0 | PDF | Air Pollution | United Nations Environment Programme

Integrated Assessment Modelling in support of European Air

Integrated assessment modelling in support of European air - Anthesis template.pdf

Informal guidance documents

Task Force on Hemispheric Transport of Air Pollution

Website: Hemispheric Transport of Air Pollution | UNECE

Objectives:

Examine the transport of air pollution across the Northern hemisphere and its regional impacts, considering air quality, health, ecosystem and near-term climate effects. Particularly, it examines:

- The impact of air pollutant emissions from the Parties on human health, ecosystems and climate change outside the ECE (i.e. extraregional impacts);
- The impact of air pollutant emissions sources outside the ECE on the achievement of the environmental objectives of the Convention and its Protocols (i.e. extraregional influences);
- The impacts of emission-reduction opportunities in the ECE region on regional and intercontinental transport of air pollution and the associated air quality, health, ecosystem and near-term climate effects of such impacts and the impacts of complementary measures that might be taken in other regions where mitigation may prove cost-effective.

Knowledge and Expertise:

Guidance and Tools:

EMEP Centres

Website: EMEP centres | UNECE

Centre on Emission Inventories and Projections (CEIP)

Website: Centre on Emission Inventories and Projections (CEIP)

Objectives:

- Collects emissions and projections of acidifying air pollutants, heavy metals, particulate matter and photochemical oxidants from Parties to the Convention;
- Reviews submitted inventories to improve the quality of reported data; and
- Prepares data sets as input for long-range transport models.

Chemical Coordinating Centre (CCC)

Website: Chemical Coordinating Centre (CCC)

Objectives:

The co-ordination and intercalibration of chemical air quality and precipitation measurements are carried out at the CCC at the Norwegian Institute for Air Research (NILU). The CCC heavily relies on the active participation of the Parties that are running the monitoring sites.

Meteorological Synthesizing Centre-West (MSC-W)

Website: **MSC-West**

Objectives:

Two Meteorological Synthesizing Centres in different parts of Europe, one Western centre at the Norwegian Meteorological Institute, are responsible for the final evaluation of the meteorological data, both working in close cooperation with CCC. MSC-West is responsible for the modelling assessment of sulphur, nitrogen photooxidant pollutants and atmospheric particles.

Meteorological Synthesizing Centre-East (MSC-E)

Website: MSC-East

Objectives:

Two Meteorological Synthesizing Centres in different parts of Europe, one Eastern centre at the Hydrometeorological Service in Ljubljana, are responsible for the final evaluation of the meteorological data, both working in close cooperation with CCC. The modelling development for heavy metals and POPs is the responsibility of MSC-East.

Centre for Integrated Assessment Modelling (CIAM)

Website: Centre For Integrated Assessment Modelling (CIAM)

Objectives:

Prepares technical background material for the annual meetings of the Task Force on Integrated Assessment Modelling (TFIAM).

Working Group on Strategies and Review (WGSR)

Task Force on Reactive Nitrogen

Website: Reactive Nitrogen | UNECE

Objectives:

Developing technical and scientific information, and options which can be used for strategy development across the UNECE to encourage coordination of air pollution policies on nitrogen, and may also be used by other bodies outside the Convention in consideration of other control measures.

Knowledge and Expertise:

Guidance and Tools:

Appetite for Change Guidance Document: Appetite for Change full report.pdf (unece.org)

Measures for the Control of Emissions of Ammonia from Agricultural Sources: Microsoft Word - 1999 Multi.E.Amended.2005.doc (clrtap-tfrn.org)

Nitrogen Budgets Guidance Document: Guidance Document on national nitrogen budgets

Options for Ammonia Mitigation Guidance Document: Guidance Document on preventing and abating ammonia emissions from agricultural sources

Integrated Sustainable Nitrogen Management Guidance Document: UNECE_NitroOpps red.pdf

Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions: unece.org/sites/default/files/2021-06/Ammonia_SR136_28-4_HR_0.pdf

Task Force on Techno-Economic Issues

Website: Techno-economic issues | UNECE

Objectives:

Update and assess information on emission abatement technologies for the reduction of air pollutants (SO2, NOx, VOCs, dust (including coarse PM (PM10), fine PM (PM2.5) and black carbon), heavy metals and persistent organic pollutants (POPs) and their costs. It is also tasked with establishing and maintaining a regional clearing house of control technology information with the aim of being a reference place for dissemination of information to the experts of the Parties.

Knowledge and Expertise:

- Technical support on emission inventory and projection.
- Support in developing legislative framework.
- Training sessions for experts on available techniques and their costs.
- Support in retrofitting industrial plants.
- Developing Ad Hoc tools to manage methodologies (like e.g. ERICCA).

Guidance and Tools:

(Available in English, Russian and French)

Guidance Document on Shipping:
https://unece.org/environment/documents/2023/10/working-documents/draft-guidance-document-technical-measures-0

Guidance Document on Methane:
https://unece.org/environment/documents/2023/10/working-documents/draft-guidance-document-technical-measures

Guidance document on prioritizing reductions of particulate matter so to also achieve reduction of black carbon (TFIAM and TFTEI):

https://unece.org/sites/default/files/2021-04/ECE_EB.AIR_WG.5_2021_8-2102625E.pdf

ECE/EB.AIR/2023/6: Draft Guidance document on technical measures for reduction of methane emissions from landfill, the natural gas grid and biogas facilities
https://unece.org/info/events/event/371557

ECE/EB.AIR/2023/7: Draft guidance document on technical measures for reduction of air pollutant emissions from shipping
https://unece.org/info/events/event/371557

In collaboration with TFRN - ECE/EB.AIR/2023/5 - Co-mitigation of methane and ammonia emissions from agricultural sources:
https://unece.org/info/events/event/371557

EB_42 December 2022: In collaboration with TFIAM - ECE/EB.AIR/2022/7: Cost of inaction
https://unece.org/info/events/event/367824

ECE/EB.AIR/2022/5 Technical information for the review of the Gothenburg Protocol (Chapter III, pages 13-15) “Technological pathways towards ratification of the amended Gothenburg Protocol: case studies of four countries in Eastern and South-Eastern Europe, the Caucasus and Central Asia”:
https://unece.org/info/events/event/367824

EB_41 December 2021: ECE/EB.AIR/2021/5: Draft guidance document on reduction of emissions from agricultural residue burning
https://unece.org/environmental-policy/events/executive-body-forty-first-session

EB_39 December 2019

ECE/EB.AIR/2019/5 Code of good practice for wood-burning and small combustion installations: https://unece.org/environmental-policy/events/executive-body-thirty-ninth-session

WGSR_34 December 2016: Working Group on Strategies and Review, Fifty-fourth session | UNECE
Draft guidelines for estimation and measurement of emissions of volatile organic compounds – 2016: 1617111 (unece.org)

EB_35 May 2016: Executive Body, Thirty-fifth session | UNECE
Guidance Document on Emission Control Techniques for Mobile Sources: 1617111 (unece.org)

EB-31 December 2012: Executive Body for the Convention, Thirty-first session | UNECE
Guidance document on control techniques for emissions of sulphur, NOx, VOC, and particulate matter (including PM10, PM2.5 and black carbon) from stationary sources: United Nations (unece.org)

Informal documents (in English only):
WGSR_61 September 2023: https://unece.org/info/events/event/371555

- Reduction techniques for mobile sources and the review of annex VIII of the Gothenburg Protocol
- Technological pathways in Serbia, Georgia, Kazakhstan, Moldova, Montenegro and Armenia
- Impact of de-carbonization on emissions of air pollutants in selected industrial sectors

WGSR_60 April 2022: Working Group on Strategies and Review, sixtieth session | UNECE

- TFTEI background informal technical document for the Review of the Gothenburg Protocol for Industrial Processes Annexes IV, V, VI, X and XI: 2 (unece.org)

WGSR_58 December 2020: Working Group on Strategies and Review, Fifty-eighth session | UNECE

- Review on BC and PAH emission reductions induced by PM emission abatement techniques. 2020: 2 (unece.org)

Background information technical document on techniques to reduce emissions from aluminium production. 2020: TFTEI_aluminium_background_document-december_2020.pdf (unece.org)

Background informal technical document on techniques to reduce pollutant emissions from cement production and determination of their costs. 2020: 2 (unece.org)

Other documents:

Large combustion installations

Estimation of costs of reduction techniques for LCP methodology – 2015: TFTEI_cost_calculation methodology_2015_05_28.pdf (citepa.org)

Manual for TFTEI cost calculation tool for reduction techniques for LCP – 2015: TFTEI-LCP-costs-user-manual.pdf (citepa.org)

Impact of decarbonization on emissions of air pollutants in selected industrial sectors: https://unece.org/sites/default/files/2023-08/Agenda%20item%20%282%29%20Impact%20of%20decarbonization%20on%20emissions%20.pdf

Review on Black Carbon (BC) and Polycyclic Aromatic Hydrocarbons (PAHs) emission reductions induced by PM emission abatement techniques (TFTEI)

Task Force for International Cooperation on Air Pollution

Website: International Cooperation on Air Pollution | UNECE

Objectives:

The Task Force for International Cooperation on Air Pollution acts as the steering group for the Forum for International Cooperation on Air Pollution (FICAP), which promotes international collaboration towards preventing and reducing air pollution to improve air quality globally. The Forum aims to facilitate international exchange of information and mutual learning on both the scientific/technical and policy levels, and complement ongoing efforts by making the UNECE Air Convention's 45 years of experience, tools, methods and expertise available to other regions, countries and organizations.

Knowledge and Expertise:

Guidance and Tools:

UNECE Secretariat

Guidance and Tools:

Course: Convention on Long-range Transboundary Air Pollution | One UN Climate Change Learning Partnership (unccelearn.org)

Course: How to Report Emissions under the Convention on Long-range Transboundary Air Pollution | One UN Climate Change Learning Partnership (unccelearn.org)