

# DRAFT WORKPLAN 2020-2021 - science project activities

Informal document compiled by the secretariat based on the submissions by the Chairs of the Working Group on Effects and the Steering Body to EMEP

## EMEP activities

	<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Main responsible body</i>	<i>Resource requirements (in US\$)</i>
<b>Improving tools to assess air pollution and its effects in the UNECE region</b>				
<b>Monitoring and modelling tools</b>				
1	Assessment of PAH pollution levels, key sources and trends: contribution to the analysis of population exposure to PAHs	<p>1) Multi-model analysis of B(a)P pollution levels in framework of EMEP EuroDelta-Carb intercomparison exercise</p> <p>2) Detailed assessment of PAH pollution in Poland with emphasis to evaluation of national emissions and exceedances of air quality guidelines</p> <p>3) Model assessment of key source categories and analysis of PAH pollution levels in the EMEP region</p> <p>Technical report on assessment of PAH pollution on national and regional scales as contribution to analysis of the effectiveness of the POP Protocol (2021)</p>	MSC-East in collaboration with TFTEI and TFH	EMEP budget
2	Harmonise and improve approaches to PM inventory emissions and modelling, accounting for so-called condensable compounds.	<p>Expert workshop on condensable (2020)</p> <p>Minutes and report to EMEP SB (2020)</p>	MSC-W in co-operation with CEIP, TFMM, TFEIP, TFIAM	Funding from Nordic Council of Ministers or other sources
3	<p>BC assessment (will also be part of a EuroCarb study)</p> <p>Provide background information for inclusion of BC in revised GP</p>	Take stock of the joint EMEP/ACTRIS/COLOSSAL winter 2017/2018 field campaign by launching a dedicated model intercomparison exercise (Eurodelta-Carb, in collaboration with the Copernicus Atmosphere Monitoring Service) focusing	TFMM, MSC-West, CCC + cooperation with CAMS, ACTRIS, COLOSSAL, IPCC, AMAP, TFEIP	Need for voluntary (in-kind) contributions from interested countries (participants to the Euro carb field campaign?)

		<p>on black carbon, organic aerosols and BaP.</p> <p>First report and publications (2020)</p> <p>Assessment of the relative importance of residential wood burning and road transportation for Black Carbon from both models and measurements (2021)</p>		
4	Investigating monitoring of chemicals of emerging concern	<p>Review of the main stakes (2020)</p> <p>Report in 2021</p>	CCC with TFMM	
<b>Emissions and projection tools</b>				
5	<b>Detailed analysis of the status of inclusion of the condensable component in PM emissions</b> reported by Parties based on the data provided by Parties in their IIRs and on direct communication with Parties for selected NFR categories (case studies).	Status report (2020)	CEIP and TFEIP in collaboration with MSC-West and TFMM	Covered by the EMEP budget
6	<b>Improving gap filling and gridding processes of BC emissions</b> data by using new data sources (IIASA, corine land cover, population statistics)	<p>Updated BC emission inventories (2020- 2021)</p> <p>New TFEIP black carbon working group</p>	<p>CEIP in cooperation with CIAM</p> <p>TFEIP in cooperation with IPCC</p>	Need to find complementary resources
7	Improvement of data for the modelers: comparison of EMEP gridded emissions with other sources (CAMS, Fairmode)	Status report and recommendation for further improvement of EMEP gridded emissions (2021)	CEIP in collaboration with MSC-West and CAMS, JRC, Fairmode	Covered by the EMEP budget
8	Drafting a paper on opportunities arising from earth observation	<p>First draft in 2020</p> <p>Final paper in 2021</p>	TFEIP in cooperation with Copernicus	
9	Dealing with fine timescale emission estimates	Draft guidance in 2021	TFEIP in cooperation with TNO (NL)	

<b>Integrated assessment tools</b>				
10	IAM-Framework for the review of the amended Gothenburg Protocol,  Assessment to what extent the long-term targets will be met (in 2020-2030-2050), when technical annexes of the AGP will be implemented completely.	Position paper for the review of the amended Gothenburg Protocol (2020)  Data and scenario analyses (2021)	TFIAM and CIAM	Covered by the EMEP budget
11	Assessing observed trends in AP at the various scales  Follow-up on the measurement (twin-sites) and modelling approaches to assess the long-range contribution to urban air pollution.  Linkages between global and regional air pollution	Note as a Contribution to the review of the Gothenburg Protocol (2020)	TFMM, TFHTAP, TFIAM, MSC-W	
12	Ammonia: Contribute to improve understanding of expected benefit of ammonia mitigation in terms of wet and dry nitrogen deposition (including at high spatial resolution), long-term trends, chemical regimes of secondary inorganic aerosol formation	Ammonia assessment report in 2020	TFIAM with support from TFMM, TFRN and countries experts (NL, FR)	
<b>Linking the scales</b>				
13	Expert Panel on clean air cities (EPCAC) road map	Position paper on multiscale interactions (2020)  Two annual meeting of the EPCAC (2020 and 2021)	TFIAM with nominated experts	Covered by in-kind contributions from participating countries

14	<p>Downscaling of EMEP/MS-CW modelling results to fine scale, while keeping the consistency to the larger scale (e.g. that reductions done on larger scale will affect the fine scale in a consistent way). Evaluate the approach for countries that have detailed emission/proxy data as well as measurements data (e.g. Netherland, the UK, Switzerland) together with the countries.</p> <p>Develop methodology for downscaling of deposition, with a focus on reduced nitrogen.</p>	<p>Results for PM and NO<sub>2</sub>, report (2020).</p> <p>Maps for reduced nitrogen deposition for selected countries, report (2021).</p>	<p>MS-CW with TFMM and national experts</p>	<p>Depend on external funding (which MS-CW will apply for)</p>
15	<p>Attribution of long-term changes of Hg and POP pollution to regional and extra-regional (global, secondary) sources</p>	<p>1) Analysis of available global Hg and POP emissions inventories (e.g. EDGAR, UNEP) for evaluation of long-term pollution changes;</p> <p>2) Model assessment of the role of regional, global, and secondary sources in long-term changes of Hg and POP pollution on a global scale with focus on the EMEP region.</p> <p>Technical Report on source attribution of long-term changes of Hg and POP pollution (2021)</p>	<p>MS-East</p> <p>TF HTAP, AMAP, UNEP, Stockholm Convention, Minamata Convention</p>	<p>EMEP Budget + other resources if possible</p>
16	<p>Investigations on global scenarios and assessment of global sectoral mitigation measures</p>	<p>Report (2021)</p>	<p>TFIAM and TFHTAP</p>	
17	<p>Organize the development of an updated global emissions mosaic to support future modeling efforts to quantify extra-</p>	<p>Data set (2021)</p>	<p>TF HTAP in cooperation with Copernicus</p>	<p>Covered by Parties in-kind contributions</p>

	regional contributions to air quality and deposition.			
18	Continue development of the openFASST tool for screening analysis of future scenarios and implications of global and regional model uncertainties	Tool updates (2020, 2021)	TF HTAP	Covered by Parties in-kind contributions
19	Organize analysis and model improvements needed to improve the estimation of the health and environmental benefits of decreasing ozone through mitigation of methane emissions.	Workshop (2020)	TF HTAP with MSC-W, ICP Vegetation, TFEIP, TFTEI, TFMM	Covered by Parties in-kind contributions
<b><i>Cooperation with Parties</i></b>				
20	Downscaling of HM pollution assessment from regional to national and local levels (country-scale studies)	<p>1) Detailed evaluation of heavy metal (Pb, Cd, Hg) pollution levels in a selected country (Germany) involving variety of national data;</p> <p>2) Evaluation of national emissions using modeling results and observations</p> <p>3) Recommendations for improvement of the assessment quality both on national and regional scales</p> <p>Joint report on heavy metal (Pb, Cd, Hg) pollution of Germany (2020)</p>	<p>MSC-East</p> <p>In collaboration with TFMM and Germany (UBA)</p>	Partly funded by Germany (28 000 USD)
<b><i>Cooperation with other projects and bodies (outreach activities)</i></b>				
21	Cooperation with Copernicus/CAMS	<p>Implementation on NRT facilities to report observations (2020)</p> <p>Validation of CAMS products with EMEP sites</p>	CCC	Budget provided by Copernicus
22	Cooperation with CCAC	<p>Strategy to deal with emission reporting at the global scale and with black carbon control strategy</p> <p>Common strategy in 2020</p>	EMEP with support from TFEIP, TFHTAP, TFMM	

23	Cooperation with Arctic Council and AMAP	Focus on Black Carbon in the framework of a EU contract	CEIP, CIAM, MSC-West	Budget provide by AMAP (EU contract)
24	Support UNEP Stockholm Convention (SC) in relation to atmospheric observations and data management within the UNECE region	Report to EMEP/WGE annual meetings	MSC-East	
<b>Improving the functioning of the WGE and EMEP and of their subsidiary bodies</b>				
25	Ozone flux-based risk assessment for vegetation at various air pollution scenarios (for a potential review of the GP).	Maps and report (2021)	MCS-W, ICP-Vegetation, TFMM	
26	Ozone flux-based risk assessments adapted for vegetation in soil moisture limited areas.	Maps and report (2020)	MCS-W, ICP-Vegetation, TFMM	

## WGE activities (all groups under WGE except JEG DM)

### ICP-Waters

<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Main responsible body</i>	<i>Resource requirements (in US\$)</i>
Thematic report on reactive nitrogen (special attention to nitrogen saturation and influences of nitrogen downstream of headwaters)	Final report (2020)	ICP Waters (cooperation with ICP IM and other bodies, if possible)	Covered by recommended contributions
Thematic report on biological recovery and responses to changing water chemistry (To be discussed at TF meeting 2020)	Final report (2021)	ICP Waters	Covered by recommended contributions

### ICP-Materials

<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Main responsible body</i>	<i>Resource requirements (in US\$)</i>
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Monitoring and assessment of the impact on the environment of corrosion and soiling effects on materials and their trends	Environmental data report (2020) Report of trends in corrosion, soiling and pollution 1987-2019 (2020) Technical manual 2017-2021 (2021) Revision of mapping manual to include soiling (2021)	ICP Materials	
Gathering information on policy-relevant user-friendly indicators to evaluate air pollution effects on materials by conducting case studies on UNESCO cultural heritage sites	Call for data on UNESCO sites: – Report focused on the relative importance of individual pollutants on the cost of damage for selected UNESCO sites (2020) – Report on application of models with increased resolution (1km x 1km) at selected UNESCO sites (2021).	ICP Materials	

#### ICP-Integrated Monitoring

<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Main responsible body</i>	<i>Resource requirements (in US\$)</i>
Scientific paper on impacts of internal catchment-related nitrogen parameters to TIN leaching.	Scientific paper (2020)	ICP Integrated Monitoring	
Report on Hg and HM trends in concentrations and fluxes across ICP IM sites in Europe.	Report (2021)	ICP Integrated Monitoring	
Scientific paper on effects of N enrichment on forest vegetation. A co-operation between ICP IM and ICP Forests.	Scientific paper (2020)	ICP Integrated Monitoring	

#### ICP-Vegetation

<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Main responsible body</i>	<i>Resource requirements (in US\$)</i>
Ozone flux-based risk assessments for vegetation at	Maps and report (2021)	ICP Vegetation in collaboration with MSC-W	Covered by the United Kingdom of Great

various air pollution emission scenarios			Britain and Northern Ireland and EMEP
Ozone flux-based risk assessments adapted for vegetation in soil moisture-limited areas	Maps and report (2020)	ICP Vegetation in collaboration with MSC-W	Covered by the United Kingdom of Great Britain and Northern Ireland, Spain, other interested countries and EMEP
Review of interactive impacts of ozone and nitrogen on vegetation	Report (2020)	ICP Vegetation	Covered by the United Kingdom of Great Britain and Northern Ireland, Sweden and other interested countries

### ICP Modelling and Mapping

<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Main responsible body</i>	<i>Resource requirements (in US\$)</i>
Steady-state Critical Loads: (a) update of National Critical Loads by National Focal Centres; (b) establish European Background Database by CCE	Database (2020/2021) for Critical Loads for acidification and eutrophication, Report	Coordination Centre for Effects	Coordination Centre for Effects, National Focal Centres /  Funding covered by (a) NFCs, (b) Germany
Empirical Critical Loads: Validation and revision of the empirical Critical Loads published by Bobbink et al. 2011	Report on empirical Critical Loads in Europe (2021)	Coordination Centre for Effects	Coordination Centre for Effects, National Focal Centres /  Funding covered by recommended contributions

### ICP Forests

<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Main responsible body</i>	<i>Resource requirements (in US\$)</i>
Ozone flux-response relationships by means of DO3SE model (ICP Vegetation) and ICP Forests ozone data and response parameters	Ozone effect on radial tree growth across Europe (2021)	ICP Forests	National funding
N deposition and its effects on forest vegetation (monitoring activities according to the ICP Forests Manual)	Reports about status and trends of N levels in European forests (2020, 2021)	ICP Forests	Covered by recommended contributions



Status and trends of heavy metals in forest ecosystems	(1) Maps of heavy metal concentrations across Europe for two different survey periods (2020) (2) Scientific paper/report (2021)	ICP Forests	22.000
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TF-Health (To be confirmed)

<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Main responsible body</i>	<i>Resource requirements (in US\$)</i>
Consolidate existing evidence on the health outcomes of exposure to air pollution	Update of the evidence on the health impact of ozone, PM, nitrogen dioxide, sulphur dioxide and carbon monoxide  A (scoping) report on emerging issues and methods for health risk/impact assessment of air pollution and cost-benefit analysis in collaboration with EMEP groups (pending availability of resources)	Task Force on Health	Partly covered by EC and other potential donors; further funding needed
Further develop methodologies for assessment of direct and indirect impacts of long-range transboundary air pollution on human health	Update of tools for quantification of the health burden of air pollution; also linking to climate change mitigation	Task Force on Health	Expected to be covered by recommended contribution and other potential donors
Evaluate the current knowledge on the health risk of polycyclic aromatic hydrocarbons and identify critical gaps; assess feasibility of continuing the work under the Task Force on Health	Technical report on health risks of polycyclic aromatic hydrocarbons	Task Force on Health	Covered by Norway and Sweden with support from Finland, Switzerland, United Kingdom of Great Britain and Northern Ireland, and Canada
Capacity-building for the health impact assessment of air pollution at the regional and subregional levels	Development and implementation of variants of capacity-building curriculum to address different needs	Task Force on Health	Expected to be covered by recommended contribution and other potential donors
Development of communication strategies for health messages related to air pollution in Europe	Workshop on communication strategy; regional input to the global activity coordinated by WHO Headquarters;	Task Force on Health	Expected to be covered by recommended contribution and other potential donors