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Executive Body for the Convention on Long-range Transboundary Air Pollution

Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe

Working Group on Effects

First joint session*

Geneva, 14–18 September 2015 Items 5 and 11 of the provisional agenda

Progress in activities of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe in 2015 and future work

Draft 2016-2017 workplan for the implementation of the Convention

2016–2017 workplan for the implementation of the Convention**

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^{*} The Executive Body to the Convention agreed that, as of 2015, the Working Group on Effects and the Steering Body to the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe should meet jointly, to achieve enhanced integration and cooperation between the Convention's two scientific subsidiary bodies (ECE/EB.AIR/122, para. 47 (b)).

^{**} The present document is being issued without formal editing.





ECE/EB.AIR/GE.1/2015/11 ECE/EB.AIR/WG.1/2015/14

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Introduction

- 1. The workplan translates the vision, objectives and strategic approaches set in out in the Long-term Strategy for the Convention on Long-Range Transboundary Air Pollution (ECE/EB.AIR/106/Add.1, decision 2010/18, annex) into a biannual workplan for the period 2016–2017. Its structure builds on the primary needs of the Convention and its Parties, relating to five main areas: science; policy; compliance; capacity-building; and communication and outreach. For each area, an introduction provides a short description of the activities, their objective and the main intended outcome, in line with the Long-term Strategy. A table presents the specific activities planned and the lead body. The main responsible bodies, i.e., the Executive Body and its subsidiary bodies, are assigned tasks within the framework of their mandates.
- 2. This approach to structuring the workplan allows Parties to better assess the work of the different subsidiary bodies and their deliverables in the light of meeting the Convention's needs and ensuring progress in realizing the vision set out in the Long-term Strategy. It takes account of the recommendation by the ad hoc group of experts that "the Executive Body and its Bureau should give more attention to developing and scrutinizing workplans to provide better focus for targeting the Convention's priorities and ensuring appropriate outputs" (ECE/EB.AIR/2012/15, para. 7).
- 3. The full implementation of the activities in the workplan will require resources in addition to those provided by the United Nations regular budget and the Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP Protocol). Therefore, Parties are invited to support the Convention's activities in 2016–2017, particularly those not covered by the EMEP Protocol, by contributing to the Convention's trust fund, by financing activities directly and by making in-kind contributions. Parties are also invited to take the lead in supporting the specific activities substantially. Resources required for activities not covered by the United Nations regular budget and by the budget provided for by mandatory contributions under the EMEP Protocol and recommended contributions under decision 2002/1 on the financing of core activities are indicated in United States dollars (US\$). Parties or organizations providing additional resources for the period 2016–2017 are acknowledged in the column "Resource requirements and/or funding source".
- 4. In accordance with article 11 of the Convention, the United Nations Economic Commission for Europe (ECE) is carrying out the secretariat functions entrusted to it:
 - (a) To convene and prepare the meetings of the Executive Body;
- (b) To transmit to the Parties reports and other information received in accordance with the provisions of the Convention;
 - (c) To discharge the functions assigned to it by the Executive Body.
- 5. The role of the secretariat has been further specified in the Convention's protocols and several Executive Body decisions and, in particular, in decisions 2010/19 (rules of procedure), 2012/25 (improving the functioning of the Implementation Committee) and 2012/3 and 2012/12 (adjustments under the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) to emission reduction commitments or to inventories for the purposes of comparing national total emissions with them).
- 6. Activities covered by the regular United Nations budget can be supported by extrabudgetary resources, as available.

1. Science

- 7. In line with the priorities set out in the Long-term Strategy for the Convention, science-based decision-making and the effects-oriented approach will remain an essential component of the Convention and the links between science and policy development will be retained and further strengthened. User-friendly effect indicators and cost-benefit assessments are important to policy, politicians and the public and will be further developed. The science-related work in the period 2016-2017 will aim to make further progress on the remaining and emerging challenges identified in the Long-term Strategy (e.g., particulate matter (PM), tropospheric ozone, critical load exceedances and linkages between air pollution, climate change and biodiversity). It will also aim to further integrate the various elements covered by the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) and the effects-oriented activities under the Working Group on Effects (WGE). This integration will be demonstrated through common/joint outcomes/ deliverables, like assessment reports, country reports, joint websites, capacity-building or responses to the needs of Parties. Many of the scientific tools developed under the Convention, such as integrated assessment modelling, are used by other stakeholders and will continue to be further developed.
- 8. One important part of the scientific part is to provide relevant data and to analyse air pollutant concentrations and depositions and their adverse effects on human health and ecosystems, damage to crops and materials. The monitoring activities provide the information on the status and long-term trends of the environment in time and across the ECE region. It also provides data for increased scientific understanding of relations between emissions and effects and to support model development and verification.
- 9. Atmospheric and effects modelling activities have as a main goal to generalise and quantify the relations between emissions and effects to support the implementation of protocols to the Convention. They also provide tools necessary for the development and assessment of effective policies abatement policies. They also help to compile and evaluate information on transboundary air pollution exchanges and assist the implementation of the EMEP and WGE monitoring strategies. This work provides direct input to integrated assessment modelling, assessment of critical loads and their exceedances and assessment of the hemispheric transport and effects of air pollution.
- 10. The main goal of the work on dose response and critical loads (table 1) is to provide comprehensive information that gives a measure of the damage or potential damage caused by air pollution to various ecosystems including Natura 2000 protected areas and agricultural areas.
- 11. The main goal of further developing emission inventories is to improve their quality, transparency, consistency and completeness. Parties are supported with their emission reporting requirements under the Convention and its protocols. Methodologies are being developed to evaluate emission data and projections, so that reporting problems should be identified and resolved. However, experience shows that scientific work to improve quality and robustness of emission and projection data should be maintained. Reporting requirements, to the extent possible, are constantly being harmonized with other bodies, in particular the United Nations Framework Convention on Climate Change (UNFCCC) and the European Union (EU) National Emission Ceilings Directive. Estimated emissions and

Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants.

their projections provide direct input to integrated assessment modelling and a basis for the review of compliance. A specific activity covered under this workplan item concerns the review of applications for adjustments to emission inventories submitted in accordance with Executive Body decisions 2012/3, 2012/4 and 2012/12.

- 12. The main goal of integrated assessment is to carry out a science-based evaluation and assessment of the effectiveness of policies (past and future ones) and protocols (a strategic priority of the Convention). Integrated assessment modelling is carried out to develop and analyse scenarios on cost-effective reduction of acidification, eutrophication, tropospheric ozone, human exposure to PM and ozone, and short-term regional radiative forcing. Integrated assessment modelling covers: (a) abatement options for reducing sulphur, nitrogen oxides, ammonia, non-methane volatile organic compounds (NMVOCs), methane, primary PM, organic and black carbon and carbon monoxide, including structural measures in energy, transport and agriculture, as well as their costs; (b) projections of emissions; (c) assessments of the atmospheric transport of substances; and (d) analysis and quantification of the environmental and health effects and benefits of emission reductions.
- 13. The main goal of the work on hemispheric transport of air pollution is to develop a fuller scientific understanding of the intercontinental transport of air pollution across the Northern Hemisphere, its impacts on health, ecosystems and climate, and the linkages between regional air pollution and global change. The activities include collaboration with international bodies, programmes and networks, both within and outside the ECE region, with related interests. The work is organized around six themes: model development and evaluation, source attribution and source/receptor analysis, impacts of air pollution on health, ecosystems and climate, impact of climate change on air pollution, global air pollution emissions inventories and projections and distributed data network and analysis tools.
- 14. Work on science-policy messages/recommendations will be in the form of assessment and synthesis reports of the work by the scientific subsidiary groups prepared to identify trends and highlight policy-relevant scientific findings.
- 15. Since many of the activities are of routine character with similar activities from year to year the table is divided into two parts: A. Science project activities in the 2016-2017 period and B. Science routine activities with clear objectives and time-determined deliverables.

1. Science

Workplan

item	Activity description/objective	outcome/deliverable	Lead body(ies)	funding source		
Α.	Science project activities in the	ne 2016-2017 period				
1.1	Improving tools to assess air pollution and its effects in the UNECE region					
1.1.1	Monitoring and modelling to	ols				
1.1.1.1	Set priorities for monitoring and other collection of data by Parties in view of policy needs and given financial constraints. Prioritize calls for data and data collection for International Cooperative	An updated list of monitoring and inventory priorities and recommendation to the Executive Body in 2016.	Working Group on Effects (WGE)	Covered by recommended contributions and Parties		

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Resource requirements and/or

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	Programmes (ICPs) in view of the policy needs and given financial constraints			
1.1.1.2	Trends analysis of air concentrations and deposition based on monitoring data and model results	Report on observed and modelled trends in atmospheric concentrations and depositions in the Parties over the past 20 years in 2016 (to be confirmed)	Task Force on Measurements and Modelling (TFMM), Meteorological Synthesizing Centre West (MSC-W), Meteorological Synthesizing Centre East (MSC-E) and Chemical Coordinating Centre (CCC)	Covered by France, the World Meteorological Organization (WMO) and all Parties
1.1.1.3	Finalize the model intercomparison analysis of the Eurodelta3 exercise (EMEP campaigns and trend modelling)	Publish the TFMM report and encourage peer reviewed publication	TFMM, MSC-W	Covered by France, and Parties
1.1.1.4	Review the added value of existing twin urban and remote supersites to assess the contribution of the long-range transport (LRT) to urban air pollution	Scoping document on the relevance of urban sites in the LRT context (2017)	TFMM	Covered by the Parties
	Improved model for urban background conditions; evaluate impacts of better vertical and horizontal resolution; explore the use of the 1D-ESX model to better predict concentrations in and around urban areas		MSC-W	Covered by the EMEP mandatory contributions
	Evaluation of heavy metals (HMs) and persisten organic pollutants (POPs) background levels in selected cities of the EMEP domain	EMEP report	MSC-E	Covered by the EMEP mandatory contributions
1.1.1.5	Increase reporting of "near real time" (NRT) data to strengthen EMEP contribution to Copernicus and GEOSS	Scoping document with strategic objectives in terms of timeliness for data availability	CCC	Covered by EMEP mandatory contributions and Copernicus (to be confirmed)
1.1.1.6	Improvements and update of the EMEP model for	Reports on the EMEP	MSC-W	Covered by the EMEP

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	simulating ozone, PM and NO _x concentrations including: - Improved modelling of biosphere-atmosphere exchange – including impacts of climate on ammonia (NH ₃) emissions	model improvement and model results (2016 and 2017)		mandatory contributions
	 Revisions in secondary organic aerosols (SOA) modelling to reflect changes in scientific knowledge 	s		
	- Impacts of heterogeneous chemistry on ozone and particle formation, nitrogen oxides (NO _x) lifetimes, and depositions			
	- Revised chemical scheme, using UK MCM/CRI mechanisms as reference			
1.1.1.7	Improvement and update of the EMEP model for heavy metals and POPs including: - Transition of operational calculations of HMs and POPs to the latitude-longitude projection with fine resolution.	Reports on the EMEP model improvement and model results (2016 and 2017)	MSC-E	Covered by the EMEP mandatory contributions
	- Improvement of model parameterizations of atmospheric chemistry related to interaction of Hg and POPs with atmospheric aerosols			
	- Improvement of model parameterization of pollutant exchange between different compartments (air, water, soil, vegetation)			
1.1.1.8	Quantify multi-pollutant effects on corrosion and soiling of selected materials under different environmental conditions	Status report (2016) and report on trends in corrosion, soiling and environment 1987- 2015 (2017)	ICP on Effects of Air Pollution on Materials, including Historic and Cultural Monuments (ICPs Materials)	Covered by Italy, Sweden and recommended contributions

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	Further develop activities on case studies at United Nations Educational, Scientific and Cultural Organization (UNESCO) cultural heritage sites	Call for data (2016) and status report (2017)		
1.1.1.9	Develop integrated approach to exploit synergies in research of emissions, long- range transport and exposure of HMs and POPs to allow a systematic identification of risks and for evaluation of options for emission control.	To be defined	MSC-E and WGE	To be defined
1.1.1.10	Ecosystem-depended deposition fluxes of HMs and POPs to different land use types in the new EMEP grid	Model results	MSC-E	Covered by the EMEP mandatory contributions
1.1.1.11	Evaluate the EMEP model (and subsequently improve the model); comparisons with new measurements, including satellites, AMS for aerosols, flux measurements, other networks	2017)	MSC-W	Covered by the EMEP mandatory contributions
1.1.1.12	Liaise with WGE by setting up a contact group to compare WGE exposure measurements and the EMEP observational strategy	Joint(s) meeting(s)	TFMM and ICPs	Covered by national contributions
1.1.1.13	Assess distribution and effects of long-range transported mercury (Hg) in the aquatic environment, including biota (to be	Report on mercury in the aquatic environment (to be discussed at Task Force ICP Waters	ICP on Assessment and Monitoring of the Effects of Air Pollution on Rivers and Lakes (ICP	Covered by Norway, Sweden, Finland and recommended contributions needs to be approved by
	discussed at the Task Force meeting in October 2015)	meeting in October 2015)	Waters), ICP on Integrated Monitoring of Air Pollution Effects on Ecosystems (ICP Integrated Monitoring)	ICP Waters
1.1.1.14	Assess regional extent of lakes impacted by acidification (to be discussed at the Task Force meeting in October 2015)	Report on regional extent of lakes impacted by acidification (to be decided at the Task Force meeting in	ICP Waters	Covered by Norway and recommended contributions

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
		October 2015)		
1.1.1.15	Further investigate the influence of nitrogen (N) deposition on the more sensible parts of forest ecosystems (e.g. lichens, mycorrhiza, diversity of plants, foliage N content of trees, N in soil solution).	Report on: (a) nitrogen critical load exceedance on tree defoliation; (b) impact of air pollution and climate change on forest growth; (c) impact of nitrogen deposition on tree diseases; (d) nitrogen deposition and nitrate leaching into the groundwater	ICP on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests)	Covered by Germany and recommended contributions
	Evaluate ozone impacts on forest trees at different scales (injury of leaves/needles, defoliation and/or discolouration of tree crowns, responses of symptomatic species).	Report on (a) dose- response relationships; (b) ozone injury on forest trees and on symptomatic plant species at forest edges	ICP Forests, ICP on Effects of Air Pollution on Natural Vegetation and Crops (ICP Vegetation)	Covered by Finland, Germany, Sweden and recommended contributions
	Evaluate status and long-term trends of heavy metals in forest ecosystem compartments.	Report on concentrations of heavy metals in important forest ecosystem compartments	ICP Integrated Monitoring	Covered by Finland, Germany, Sweden and recommended contributions
		Joint Cause-Effect Report		
1.1.1.16	Collect and analyse data on air pollution effects on forests, develop and refine methodologies and new approaches; further develop the data infrastructure and include a transparent documentation of taken measures and to reach a higher degree of interoperability with other networks (e.g. LTER) and infrastructure standards (e.g. INSPIRE); build-up a database for aggregated data, to enable more integrated evaluations	Data collected and prepared by ICP Forests should gain higher visibility and usability for internal and external users. Data processed and/or aggregated by ICP Forests should become usable for internal and external scientists	ICP Forests	Covered by Germany and recommended contributions

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
1.1.1.17	Evaluate effects of ground- level ozone on (semi-) natural vegetation and crops in the current and future climate, individually or co-occurring with nitrogen	Report (a) on field- based evidence of ozone impacts on vegetation; (b) on ozone impacts on biodiversity	ICP Vegetation	Covered by the United Kingdom of Great Britain and Northern Ireland and recommended contributions
1.1.1.18	Conduct the European moss survey 2015/16	Annual progress reports on the European moss survey 2015/16 (heavy metals, nitrogen and POPs	ICP Vegetation	Funding sources to be clarified
1.1.1.19	Evaluate long-term trends in ecosystem effects of sulphur (S), nitrogen and heavy metals	Report on long-term trends of S and N effects (2016)	ICP Integrated Monitoring, ICP Forests, ICP Integrated Monitoring	Covered by Finland, Sweden and recommended contributions
		Report on heavy metals trends (2017)		Covered by Finland, Germany, Sweden and recommended contributions
		Joint cause-effect report (2017)		
1.1.1.20	Determine and predict the state of ecosystems and their long-term changes with respect to the regional variation and impact of selected air pollutants, with special attention to effects on biota, and a special focus on monitoring the state of catchments and other ecosystems	Report on connections between calculated critical loads (CL) exceedances and observed impacts of N (2017)	ICP Integrated Monitoring	Covered by Finland, Sweden and recommended contributions
1.1.1.21	Analyse and compile the responses by National Focal Centres to the 2012 call for data and contributions to a dedicated Coordination Centre for Effects (CCE) report addressing: (a) dynamic modelling of abiotic and biotic changes in European Nature Information System (EUNIS) habitat classes; and (b) tentative	Preliminary application in effect oriented policy support and assessments on a European scale	ICP on Modelling and Mapping of Critical Loads and Levels and Air Pollution Effects, Risks and Trends (ICP Modelling and Mapping) with data contributions from its National Focal Centres (NFCs) the CCE and other ICPs as appropriate	Covered by France, the Netherlands and recommended contributions

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	applications on a regional scale			
	Follow up on a possible request by the 34th session of the WGE to the National Focal Centres from Parties to the Convention, including countries of Eastern Europe. the Caucasus and Central Asia, to provide national data on biodiversity critical loads to the CCE with interim results in 2016 and a deadline in 2017			
	Ensure the implementation of the European critical loads database in the EMEP-CIAM knowledge base for effect oriented European policy support guided by TFMM			
1.1.1.22	Develop further the methodologies for assessment of direct and indirect effects of long-range transboundary air pollution on human health	Report on update of methods for quantification of health burden of air pollution		Covered by Germany, Switzerland and recommended contributions
1.1.1.23	Collect and analyse the evidence on health impacts of ozone and particulate matter (PM; including black carbon)	Updated data on the evidence of the health impacts of ozone and PM	Task Force on Health	Covered by Germany, Switzerland and recommended contributions
1.1.1.24	Assess the practices for communication of health risks associated with air pollution exposure	Report on methods for communicating the health risks associated with air pollution exposure	Task Force on Health	Covered by Germany, Switzerland and recommended contributions
1.1.1.25	Assessment of pollution levels of heavy metals in selected countries	Results and data published on web	MSC-E, the Netherlands and others	Covered by EMEP mandatory contributions
1.1.1.26	(a) Investigate the role of dynamic climate-sensitive emissions (nitrogen oxides (NOx), ammonia, volatile organic compounds (VOCs), methane) for future effectiveness of the Gothenburg Protocol for	Technical report on the climate impact of achieving the Gothenburg Protocol goals	MSC-W	Covered by EMEP mandatory contributions and Norway

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	reducing levels of ozone, PM and nitrogen deposition			
	(b) Calculate Short-Lived Climate Pollutant (SLCP) forcing for Gothenburg Protocol implementation; evaluate uncertainty in black carbon forcing	Technical report on SLCP forcing originating in EMEP domain (for black carbon, methane, ozone)	MSC-W	Covered by EMEP mandatory contributions and Norway
	(c) Investigate the role of interactions and processes to lower the uncertainties of heavy metal and POP emissions and modelling in the EMEP domain	Technical report on: (a) interaction of mercury and POPs with atmospheric aerosols; (b) mercury dispersion in the environment with focus on aqueous ecosystems; (c) model parameterization of wind resuspension and re-volatilization of heavy metals and POPs; and (d) influence of climate change on secondary emissions of heavy metals and POPs	MSC-E, Centre on Emission Inventories and Projections (CEIP), CCC	Covered by EMEP mandatory contributions
1.1.1.27	Carry out biomonitoring to detect natural changes, in particular to assess integrated effects of air pollutants and climate change	on dynamic responses on vegetation changes in relation to nitrogen deposition	ICP Integrated Monitoring	Covered by Finland, Sweden and recommended contributions
1.1.1.28	Further develop and validate ecosystem responses (vegetation changes) based on long term monitoring within ICPs, including the interactions between air pollution, climate change, land use and biological responses	Annual reports on progress in dynamic modelling. Report (2016) and scientific paper (2017)	All ecosystem-related ICPs, Joint Expert Group on Dynamic Modelling (JEG)	Covered by the respective lead countries and Sweden
1.1.2	Emission and projection tools			
1.1.2.1	Liaise with the emission community to define collaboration on handling	Define a core contact group and organize a	TFMM/Task Force on Emission Inventories and Projections	Covered by EMEP mandatory contributions, France,

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	semi-volatile emissions (including condensable), but also on emission spatialisation and other important topics	joint workshop	(TFEIP) MSC-W/CEIP/TFIAM	the Netherlands and other Parties
1.1.2.2	Implement gridding system for EMEP domain in finer resolution (0.1° x 0.1° longitude/latitude). Collect and control data reported by countries on main pollutants, heavy metals and POPs; identify data gaps; further development and adaption of the new gridding system for main pollutants by including proxy data from other sources than EDGAR and by adding available information on large point sources from E-PRTR data; carry out expert estimates for remaining areas	Module based gridding system and proxies for the spatial distribution of gap-filled emission data for the new EMEP grid domain in geographical coordinates (0.1° x 0.1° longitude/latitude) for selected pollutants and years. Emission data in grids for pollutants in geographical coordinates (0.1° x 0.1°). Gradual implementation and finalization in 2017	CEIP	Covered by EMEP mandatory contributions
1.1.2.3	Comparison of CLRTAP data with emission data from other sources - the Joint Research Centre of the European Commission (JRC), the International Institute for Applied Systems Analysis (IIASA), UNFCCC (MACC optional) - and assessment of the differences	Overview tables with estimated differences. (Short report with key findings – to be confirmed)	CEIP and TFEIP	Covered by EMEP mandatory contributions
1.1.2.4	Assess reporting of black carbon under CLRTAP. Consider options to develop spatial distribution of black carbon.	Technical report	CEIP	Covered by EMEP mandatory contribution
1.1.2.5	Assess alternative methods for emission inventories for HMs and POPs (including inverse modelling) based on a combination of monitoring and modeling at regional and global scales	Technical report	CEIP, MSC-E	Covered by EMEP mandatory contribution
1.1.2.6	Update long term strategy for	Technical report in	TFEIP	To be defined

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	in-depth review.	2017		_
1.1.3	Integrated assessment tools			
1.1.3.1	Update the Greenhouse Gas and Air Pollution Interactions and Synergies (GAINS) model with new information on emissions, emerging technologies, health and ecosystem impacts.	New version of the GAINS model and its description	CIAM and Task Force on Integrated Assessment Modelling (TFIAM)	Covered by the EMEP mandatory contribution
1.1.3.2	Increase linkages with local- scale air pollution and cost- effective local measures: linking with local scale health policies; define a cost- effective balance between local/transboundary and urban/rural action	Report (2017 – to be confirmed)	CIAM and TFIAM with Task Force on Health, TFMM/MSC- W)	Covered by the EMEP mandatory contribution
1.1.3.3	Integrated nitrogen management; linking air and water; what happens to ecosystem services and biodiversity	Report	CIAM, TFIAM, Task Force on Reactive Nitrogen (TFRN), ICP Modelling and Mapping	Depends on the availability of in-kind contribution
1.1.4	Tools to account for global sc	eale issues in air quality	assessment	
1.1.4.1	Conduct updated and improved simulations of air pollution transport using an ensemble of global and regional models to quantify source-receptor relationships on intercontinental scales	Ensemble of 2008–2010 global and regional modelling base and sensitivity simulations	Task Force on Hemispheric Transport of Air Pollution (TFHTAP), MSC-W, MSC-E	In-kind contributions from national experts
	Conduct detailed model-to- observation and model-to- model comparisons	Publication of a special issue of Atmospheric Chemistry and Physics on "Global and Regional Assessment of Intercontinental Transport of Air Pollution: Results of HTAP, AQMEII, and MICS		
1.1.4.2	Evaluate the availability of mitigation strategies for air pollution in the Northern	Workshop on impact assessment methods of regional and	TFHTAP, WGE, CIAM, TFIAM	Covered by the United States, EU and in-kind contributions from

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	Hemisphere; assess implications of strategies for health, ecosystem and climate impacts	transported air pollution in cooperation with WGE and similar expert groups from South and East Asia		national experts
		Publication of a special issue or review paper in an interdisciplinary journal covering scenarios, source/receptor, impacts, and mitigation opportunities		
		Development of a "FASST-like" tool for exploring TFHTAP scenarios and impacts		
1.1.4.3	Analyze effectiveness of hemispheric control strategies: define a cost- effective balance between European and global action (with TFHTAP)	Workshop and report	TFHTAP, CIAM, TFIAM	To be defined
1.1.4.4	Examine the impact of climate change on the contribution of regional and extraregional sources of air pollution	Report on robust findings from IPCC and other studies on impacts of climate change on air pollution transport	ТҒНТАР	Covered by the United States, EU and in-kind contributions from national experts
1.2	Cooperation with Parties			
1.2.1	Raising the profile of high- quality level 1 EMEP observations	Workshop on improving the quality of level 1 EMEP observations (2016).	CCC and TFMM	Covered by EMEP mandatory contribution
	Assist Parties in implementing the Revised Strategy for EMEP for 2010–2019 (EMEP monitoring strategy); strengthen activities in regions with inadequate monitoring activities	Communication with Parties on the implementation of the EMEP monitoring strategy		

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
1.2.2	Arrange POP measurement campaign including laboratory and field intercomparison of POP analysis (pending on external funding contributions, proposal in preparation)	To be confirmed	CCC, TFMM and national experts	Covered by EMEP mandatory contribution
1.2.3	Arrange intensive measurement campaign in collaboration with ACTRIS-2 (to be discussed at the next ACTRIS-2 meeting after summer 2015)	Intensive observation period (IOP) plans to be presented to the EMEP Steering Body	CCC, TFMM and national experts	Covered by EMEP mandatory contribution
1.2.4	Assessment of HM and POP pollution levels with fine spatial resolution generated in cooperation with national experts. (EMEP case studies on HMs).	Technical reports jointly prepared with national experts on assessment of pollution levels of HMs in selected countries	MSC-E and TFMM and national experts	Covered by EMEP mandatory contribution
1.2.5	Interpret and assess together with the Parties and CCC the observation data and comparison to model data	EMEP report	MSC-W, CCC, TFMM and national experts	Covered by EMEP mandatory contribution
1.2.6	Assessment of pollution levels of heavy metals in selected countries	Results and data published online in 2016 (to be confirmed)	MSC-E, Belarus and the Netherlands	Covered by EMEP mandatory contributions
1.3	Cooperation with other project	s and bodies (outreach a	activities)	
1.3.1	Ensure strong links with scientific groups involved in level II and level III measurement activities, and formulate a strategy for the implementation of intensive observation periods	Plan for the intensive measurement campaign and coordination of its implementations	CCC and TFMM	Covered by EMEP mandatory contributions
1.3.2	Operationalize developments and recommendations resulting from research activities like e. g. ACTRIS-2, GAW Scientific Advisory Groups, etc. as appropriate	Update of the EMEP monitoring guidance	CCC	Covered by EMEP mandatory contributions
1.3.3	Improve collaboration with the WMO/GAW on the data exchange, measurement techniques harmonization and expertise exchange	Participation of EMEP experts in WMO/GAW expert bodies	TFMM/CCC	Covered by EMEP mandatory contributions

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
		Sharing EMEP data with WMO/GAW archives		
		Training of EMEP experts in the GAW training and Education Centre		
1.3.4	Strengthen the visibility of EMEP observational data distributed through other networks, such as Copernicus, EEA, TOAR, etc.	Enhanced visibility of the importance of the EMEP observation network.	TFMM/CCC	
1.3.5	Support AMAP in relation to harmonized Arctic atmospheric observations and data management (POPs, HMs, aerosols, reactive gases (SLCPs). Explore possible use of EMEP	Enhanced visibility of the EMEP observation network.	CCC/MSC-W/MSC-E	
	tools, data and infrastructure to support AMAP activities			
1.3.6	Support UNEP Stockholm Convention (SC) in relation to European atmospheric observations and data management, provide input to the SC data warehouse and secure visibility of EMEP capacities and data	Enhanced visibility of the EMEP observation network.	CCC/MSC-W/MSC-E	
1.3.7	Continued collaboration with OSPARCOM and HELCOM related to atmospheric monitoring and modeling and data managemen	Enhanced visibility of the EMEP observation network.	CCC/MSC-W/MSC-E	
1.3.8	Increase cooperation between EMEP and Copernicus Atmosphere Monitoring Service (CAMS) in the field of data assimilation and urban issues	Report to the EMEP Steering Body	MSC-W	
1.3.9	Improve collaboration with the WMO/GAW on the data exchange, measurement techniques harmonization and expertise exchange	Participation of EMEP experts in WMO/GAW expert bodies	TFMM/CCC	
	1	Sharing EMEP data		

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
		with WMO/GAW archives		
		Training of EMEP experts in the GAW training and Education Centre		
1.3.10	Contribute to air quality assessments in newly industrialized countries, including establishing source receptor relationships for major regions of the world (cooperation with WHO, UNEP, World Bank and interested countries outside the CLRTAP)	Report to the EMEP Steering Body	MSC-W, TFHTAP	
1.4	Improving the functioning of t and EMEP and of their subsid		Effects	
1.4.1	Develop common standards for all ICPs and a portal approach to enable integrated assessments and to assist the Parties in their implementation of air pollution strategies	Improvement of data access via the web	EMEP, WGE including ICPs and other subsidiary bodies	
		A formal set of agreed common standards		
		Development of a common web based portal for data from observations and models		
1.4.2	Explore ways to combine/merge the activities of some of the ICPs (e.g., ICP Integrated Monitoring, ICP Forests, ICP Waters); improve integrated working and reporting; explore possibility of joint meetings	More effective organization of the work carried out by the ICPs	WGE/ICPs	
1.4.3	Explore a more stable long- term financial mechanism for effects- related activities	Recommendation on a new financial mechanism to the Executive Body	Executive Body Bureau/main subsidiary bodies	

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
1.5	Science-policy assessment			
1.5.1	Assess the long-term trends in air pollution and its adverse effects	Trends report by WGE	WGE	
		Trends report by EMEP	EMEP Steering Body	
1.5.2	Assess scientific and policy outcomes within the Convention over the past few decades, including scientific understanding, trends and achievements under the Gothenburg Protocol, and outline future challenges	Comprehensive assessment report and its executive summary for policy makers (both in 2016)	Working Group on Strategies and Review (WGSR), WGE, EMEP Steering Body	
В.	Science routine activities			
1.1	Atmospheric and effects monit	foring		
1.1.1	Assist Parties in implementing the monitoring strategies for EMEP (2010–2019 EMEP monitoring strategy) and for WGE (Revised long-term strategy of effects-oriented activities); enhance the involvement of countries in Eastern Europe, the Caucasus and Central Asia	Improved monitoring and reporting activities in particular in areas with sparse monitoring activities	CC, ICPs	Covered by EMEP mandatory contributions and Norway Covered by the respective lead countries and recommended contributions
1.1.2	Revise and develop further the methodologies to be applied in monitoring atmospheric composition change; update the EMEP and ICP manuals for sampling and chemical and biological analysis, for prioritized species	Updated manuals for sampling and analysis	CCC and ICPs	Covered by EMEP mandatory contributions and Norway
1.1.3	Carry out quality assurance and quality control, handle and store for the long term observation data reported by Parties	Results presented on CCC and ICP websites and/or in technical reports. Online access to data via CCC website database and ICP centres in a downloadable format	CCC and ICPs	Covered by EMEP mandatory contributions and Norway

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	Provide training and assistance to Parties on data reporting, metadata documentation and dissemination	Increased quality of measurements; improved databases with measurements results		
	Update and further develop databases	New templates presented on CCC website		
		Training courses related to measurement activities, quality assurance and quality control		
		Arrange laboratory intercomparison for variables required by the monitoring strategies		
		Provide access to data for collaborating organizations		
1.1.4	Interpret and assess together with the Parties the observation data, interact with EMEP and other modelling centres on data use, assess temporal and spatial trends	EMEP status reports, EMEP joint report on particulate matter, CCC and TFMM websites ICP reports	CCC, MSC-E, MSC-W, TFMM, ICPs, JEG	Covered by EMEP mandatory contributions and Norway; voluntary contributions by Parties
1.1.5	Ensure strong links with scientific groups involved in level II and level III measurement activities, and implementation of intensive observation periods	Publication of peer- reviewed papers from EMEP intensive measurement periods	CCC	Covered by EMEP mandatory contributions and Norway
		Plan for the intensive measurement campaign and coordination of its implementations		
1.1.6	Ensure scientific and technical cooperation between air pollution and effects-oriented monitoring and modelling activities	Provide support to Parties and groups under the Convention through participation and input to relevant meetings, representing EMEP	CCC, MSC-W, MSC-E, Task Force on Health, ICPs	Covered by EMEP mandatory contributions and Norway

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	Facilitate compatibility and exchange of data related to EMEP monitoring with other monitoring activities that have complementary objectives, including activities on local air quality, short-lived climate forcers and long-lived greenhouse gases	Report on the task and inform Parties on relevant findings and actions needed or taken		
1.1.7	Foster outreach activities	Annual reports on relevance, significance and lessons learned from participation in and interaction with monitoring efforts and data assessments external to the Convention	CCC, Task Force on Health, JEG	Covered by EMEP mandatory contributions and Norway
	Contribution to and visibility in a variety of different reports from other organizations, bodies, programmes and projects			
	Cooperate with programmes and activities outside the ECE region and provide information on them to the Executive Body			
1.1.8	Share information gathered as required by the Convention with other Conventions and international bodies	h	MSC-E, MSC-W, CCC, CEIP, ICPs, Task Force on Health	Covered by EMEP mandatory contributions
1.1.9	Exchange views, experiences and suggestions on: (a) the quality, efficiency and sufficiency of EMEP measurements and data; and (b) performance and the need for improvements in models (EMEP models and those developed by the Parties) and in the scope of their application (such as for national assessments of air quality, assessment of transboundary fluxes and their influence on air quality at national levels, trend		TFMM	Covered by France other Parties and WMO

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	analyses, etc.)			
		Annual summary report to EMEP Steering Body on activities and science- relevant messages and recommendations		
		Recommendations to national measurement and modelling teams and for EMEP centres		
		Examples of good practices on national and international scales		
		Annual summary report to EMEP Steering Body with policy-relevant messages and recommendations		
1.1.10	Develop further the flux-based approach for setting critical levels of ground-level ozone for vegetation and update the dose-response functions	critical levels (2016)	ICP Vegetation, ICP Forests	Covered by the United Kingdom and recommended contributions
		Report on revised ozone risk assessments method		
		Revision of chapter 3 of the Manual on Methodologies and Criteria for Modelling and Mapping Critical Loads and Levels and Air Pollution Effects, Risks and Trends		
1.2	Dose response and critical load	ls		
1.2.1	Foster collaboration between National Focal Centres, CCE and habitat experts on the effects of air pollution, with an emphasis on nitrogen deposition on protected areas	Annual reports to Working Group on Effects and the Executive Body. Increased collaboration between	ICP Modelling and Mapping)with data contributions from its National Focal Centres (NFCs) the CCE and other ICPs as appropriate	Covered by France, the Netherlands and recommended contributions

National Focal

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
		Centres, CCE, habitat experts and other ICPs as appropriate. Participation of Task Force representatives of other ICPs in the TFM (and vice versa) is continued as possible and appropriate		
	Maintain and update the European critical load database of ecosystem data including critical loads submitted by Parties to the Convention			
	Update knowledge on novel critical threshold with biodiversity as endpoint (i.e. Habitat Suitability Index) including inputs by other ICPs as appropriate			
	Ensure compatibility of the European critical load database with databases on deposition produced by EMEP MSC-W and MSC-E to enable assessments of critical load exceedances			
1.3	Atmospheric and effects model	lling		
1.3.1	Provide air concentrations and deposition fields and source-receptor matrices for the EMEF domain for 2012 and 2013 for: (a) photochemical compounds, sulphur, nitrogen and PM; and (b) POPs and heavy metals	including model	MSC-W, MSC-E	Covered by EMEP mandatory contributions and Norway
		EMEP country reports with associated EMEP model data		
		Annual update of the database for status run results, including data on high temporal resolution and source-		

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
		receptor matrices		
1.3.2	Collate national EMEP data in unified web presentation. Provide web access to data sets/model calculation results in high temporal resolution (hourly) for use in air quality assessment by Parties	Access to information and data for use in air quality assessment by Parties	MSC-W	Covered by EMEP mandatory contributions and Norway
1.3.3	Evaluate results of the EMEP models in the new grid: model performance, trends and source-receptor relationships	Reports on the new EMEP grid based on cooperative efforts with Parties and the TFMM, including the assessment of the model performance in the new grid system	MSC-W, MSC-E	Covered by EMEP mandatory contributions
1.3.4	Global-scale modelling to assess contribution of intercontinental transport and secondary sources to heavy metals and POP pollution in the EMEP domain, in cooperation with the Task Force on Hemispheric Transport of Air Pollution, the Arctic Monitoring and Assessment Programme and the United Nations Environment Programme (UNEP)	Technical report	MSC-E	Covered by EMEP mandatory contributions
	In-depth analysis of re-emission and wind resuspension, and estimates of contribution of anthropogenic and secondary sources to mercury and POP pollution in the EMEP domain for 2012–2013	n Results and data published on the web		
		Presentation of results a TFMM and other scientific meetings	at	
1.3.5	Facilitate the use of the EMEP model by Parties	Biannual training course for EMEP model users. Present the EMEP model and instructions to facilitate the usage of	MSC-W, MSC-E	Covered by EMEP mandatory contributions and Norway

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
		model products. Provide a platform for a discussion on further EMEP model development with partners and users of EMEP model products		
		Make annual release of EMEP and Global EMEP Multi-media Modelling System (GLEMOS) open source codes	÷	
1.3.6	Develop further methodologies for modelling. Improve the understanding of processes, parameterizations, emissions and linkages to climate:	Annual note on EMEP model updates based on EMEP intensive campaigns and other scientific information	MSC-W, MSC-E	Covered by EMEP mandatory contributions and Norway
1.3.7	Communicate scientific developments, model and methodology improvements, data and products	Develop new web interface for EMEP with better access to EMEP programme products, technical documentation and news	MSC-W, MSC-E, CCC	Covered by EMEP mandatory contributions and Norway
		Develop and maintain EMEP website in Russian to facilitate access to information by countries in Eastern Europe, the Caucasus and Central Asia	7	
		Develop near real-time concentration and deposition data on heavy metals and POPs for 2013–2014 (two months' delay)		
1.3.8	Perform model simulations to support the assessment of the EU Thematic Strategy on Air Pollution, the Gothenburg Protocol, and the work of the TFTHAP; continue cooperation with modelling efforts	Database of EMEP simulations and annual explanatory note on model simulations	MSC-W	Covered by EMEP mandatory contributions and Norway

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	supporting the Climate and Clean Air Coalition, the Arctic Council's Arctic Monitoring and Assessment			
	Programme, the Baltic Marine Environment Protection Commission (HELCOM) and the Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Commission) while ensuring that such work complements and does not duplicate efforts in other forum			HELCOM, OSPAR Commission
1.4	Emission inventories			
1.4.1	Compile reported emission data and import into the CEIP database. Evaluate timeliness and completeness of submitted data. Carry out annual quality control of inventories reported under the Convention. Communicate the results to the Parties	Annual status reports to the EMEP Steering Body. Contribution to assessment report(s)	CEIP	Covered by EMEP mandatory contributions supported by the European Environment Agency
	Update long-term strategy for the review of emission data. Improve/develop new tests for emission checking	Annual country reports, assessment country reports and CEIP/European Environment Agency annual inventory review report with summary information		
		Update of methodology report		
1.4.2	Maintain and improve EMEP/CEIP database system and CEIP website. Adjust the database system (WebDab, RepDab) according to new reporting requirements and reporting formats; develop/update formats for presentation of emission data; provide support to Parties and the general public by posting data in real time; harmonize	Online access to updated information and instructions for reporting, reported data (WebDab), results of emission reviews and other relevant information	CEIP	Covered by EMEP mandatory contributions

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	the EMEP system with the revised UNFCCC common reporting format 2015			
		EMEP database system harmonized with new reporting guidelines		
		Updated RepDab		
1.4.3	Manage centralized in-depth review process. Maintain the roster of inventory experts and set up two review teams annually	Annual centralized indepth review of emission inventories. Ten country review reports with findings and recommendations	CEIP	Covered by EMEP mandatory contributions and Parties
1.4.4	Carry out compilation, quality assurance and quality control of reported gridded and large point source data, and make expert estimates for missing data. Make annual gridding of emission data for main pollutants, heavy metals and POPs and re-gridding for historical emissions	Annually updated web-based data sets of gridded data for use by modellers for current reported year plus update of selected years	CEIP	Covered by EMEP mandatory contributions
1.4.5	Develop further the EMEP/EEA air pollutant emission inventory guidebook methodologies (including for black carbon); update the maintenance and improvement plan for the guidebook	Updated maintenance and improvement plan. Updated chapters of the EMEP/EEA air pollutant emission inventory guidebook	TFEIP	Subject to availability of resource (no estimate given)
1.4.6	Develop guidance on compiling fine time-scale emissions inventories and pollutant speciation	Guidance chapters for inclusion in the EMEP/EEA air pollutant emission inventory guidebook	TFEIP	Subject to availability of resources (\$30,000)
1.4.7	Exchange information on national and international activities on emission inventories and projections at annual Task Force meetings	Annual summary report to the EMEP Steering Body with policy-relevant messages and recommendations	TFEIP	Covered by the United Kingdom, Finland and the EU
1.5	Integrated assessment			

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
1.5.1	Update and further develop the GAINS model with new information on emission data (the 2010 emission inventories), emerging technologies (provided by the Task Force on Technoeconomic Issues (TFTEI) on ecosystem impacts, ozone fluxes and health impacts of NO _x , and downscaling ammonia deposition to protected areas	Technical notes on: (a) downscaling ammonia deposition to protected areas; (b) implementation of new information on ecosystems impacts; (c) improved modelling of ozone fluxes; and (d) implementation of health impacts of nitrogen dioxide	CIAM, TFEIP, TFTEI, TFRN, ICP Modelling and Mapping	Covered by EMEP mandatory contributions and IIASA
	Interact with Parties (meetings, consultations, workshops) on input data to the GAINS model			Covered by EMEP mandatory contributions and IIASA
1.5.2	Analyse implications of EU policy proposals on air quality in the ECE region; analyse effectiveness of hemispheric control strategies	Two annual status reports	CIAM, TFIAM, TFHTAP	Covered by EMEP mandatory contributions and IIASA
1.5.3	Increase informal scientific and technical cooperation on global-scale scenarios and issues (climate, nitrogen, energy, transport, food production) in cooperation with, inter alia, the International Panel on Climate Change (IPCC), the International Nitrogen Initiative, UNEP and the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants	Global emission scenarios	CIAM	Covered by EMEP mandatory contributions and IIASA
		Technical notes on: (a) cost-effectiveness analysis; (b) impact of changes in hemispheric ozone on cost-effective emission reductions in Europe Emission scenarios for mercury		

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
1.5.4	Increase linkages with local- scale air pollution and cost- effective local measures, including co-benefits (healthy lifestyles, reduced congestion and heat stress)	Technical notes on: (a) downscaling of changes of long-range transboundary air pollution to hot spots; (b) analysis of (cost-) effectiveness of local versus national versus international measures; (c) alternative agricultural scenarios	CIAM, TFIAM	Covered by EMEP mandatory contributions and IIASA
1.5.5	Provide support to Parties, in particular countries in Eastern Europe, the Caucasus and Central Asia, and scientific groups, in line with the priorities of the Convention's Long-term Strategy	New annexes to the guidance documents on national nitrogen budgets	CIAM, TFRN	Covered by EMEP mandatory contributions and IIASA
		Contribution to the updated Handbook on emission inventories for black carbon Contribution to the join EMEP- WGE 2016 assessment report		
1.5.6	Communicate and disseminate scientific developments, model and methodology improvements, data and products through TFIAM website	Web access to data sets, models and results	CIAM, TFIAM	Covered by EMEP mandatory contributions and IIASA
1.5.7	Exchange information on national and international integrated assessment activities at annual Task Force meetings	Annual summary report to the EMEP Steering Body and the WGSR on activities and policy-relevant messages and recommendations	TFIAM	Partially covered by Netherlands and Sweden; US\$ 10,000 for travel support to participants from Eastern Europe, the Caucasus and Central Asia
1.5.8	Workshop on linking geographical scales	Report to TFIAM	TFIAM, CIAM	Host country to be determined
1.6	Hemispheric transport of air p	ollution		
1.6.1	Develop a distributed network of data repositories and web- enabled tools to facilitate	Update and further populate the hemispheric transport	CCC, MSC-W, TFHTAP	Covered by EMEP mandatory contributions, and

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	broader participation in the assessment of intercontinental transport of air pollution	of air pollution observation (HTAP-Obs) database		contributions from Norway, the United States and the EU
		Provide free access to the database		
		Create web-enabled tools to access, visualize, and analyse hemispheric transport of air pollution experiment results		
1.6.2	Communication of policy- relevant messages concerning intercontinental transport of air pollution and cooperation with other relevant regional and global efforts	Annual report to EMEP Steering Body highlighting new policy-relevant findings. Jointly organized workshops with other regional and global cooperative efforts. Participation in major international conferences	TFHTAP	Covered by the United States, the EU and in- kind contributions from national experts
1.7	Adjustment procedure			
1.7.1	Reviews applications for adjustments to emission reduction commitments or inventories and any supporting documentation submitted by Parties in accordance with Executive Body decisions 2012/3, 2012/4 and 2012/12	Expert assessments submitted to the EMEP Steering Body	CEIP	Covered by voluntary contributions by Parties in-kind or in cash to CEIP
1.7.2	Consider expert assessments of the applications for adjustments to emission inventories	Decision on granting or refusing adjustment by the EMEP Steering Body	EMEP Steering Body	_
	Consider expert assessments of the applications for adjustments to emission reduction commitments and make recommendations to the Executive Body	Recommendations to the Executive Body		
1.7.3	Provide support to the implementation of the	Implementation of decisions 2012/3 and	Secretariat	_

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	adjustment procedures under the Gothenburg Protocol as laid out in decisions 2012/3 and 2012/12	2012/12		
1.8	Improve functioning of the Wo		ces)	
1.8.1	Foster integrated/thematic assessments, combining the work and output of different subsidiary bodies; identify subject areas for future integrated/thematic assessments	Continue production of integrated/thematic reports, with short summaries (brochures) providing key messages aimed at policy makers and synthesis papers in scientific journals for the science community (improving internal/external communication)	EMEP, WGE including ICPs and other subsidiary bodies	
1.8.2	Report to WGSR on scientific findings of policy relevance from joint sessions of WGE and EMEP Steering Body	Report of joint session of WGE and EMEP Steering Body with recommendations as appropriate to WGSR	Chairs and Bureaux of WGE and EMEP Steering Body	_
1.8.3	Report on policy implications of scientific findings	Report to the Executive Body session in 2016	Chairs: WGSR, WGE and EMEP Steering Body	
1.8.4	Develop further dynamic modelling of air pollution-induced change in biodiversity for the purpose of setting critical loads and target loads; take action to enhance the involvement of parties currently not actively participating in JEG	Annual reports on progress in dynamic modelling of biodiversity change.	All ecosystem-related ICPs, JEG	Covered by the respective lead countries and Sweden

2. Policy

16. In line with the priorities set out in the Long-term Strategy for the Convention, the policy-related work in the period 2016–2017 will aim to foster the implementation of the Convention and its three most recent Protocols, and their recent amendments (i.e., the Gothenburg Protocol, the Protocol on Heavy Metals and the Protocol on Persistent Organic Pollutants), throughout the ECE region, with a particular emphasis on the countries in Eastern and South-Eastern Europe, the Caucasus and Central Asia. It will also aim to

address linkages with climate change, biodiversity and other cross-sectoral considerations, notably the linkages between nitrogen and human diet, water, ecosystems and biodiversity. Cooperation will be established and maintained with regional and global organizations addressing cross-sectoral issues, such as biodiversity, ecosystems, agriculture, food and climate change The implementation of the Convention's protocols will be strengthened through the exchange of information and good practices on policies, legislation and measures, as well as technology. The development and dissemination of guidance documents and materials to increase the knowledge and awareness of best available techniques (BAT), as well as the exploration of new approaches and abatement measures, including the development of an integrated approach for controlling nitrogen pollution, will further support the implementation of the protocols.

Table 2 **Policy**

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
2.1	Exchange of information and review	ew/development of strategies and	d policies	
2.1.1	Exchange information on national, subregional and regional policies and strategies for the control of major air pollutants, in accordance with article 8 of the Convention, including exchanging experiences and best practices on policies, strategies and measures to	(a) Collection and analysis of information on strategies and policies for air pollution abatement throughout the ECE region, presented to the Working Group on Strategies and Review	Secretariat	US\$ 30,000
	implement the Convention's protocols and their amendments at sessions of the Working Group on Strategies and Review. Provide a platform for sharing information on the challenges faced by countries in Eastern and South-Eastern Europe, the Caucasus and Central Asia in acceding to the Convention's three recently amended Protocols and the implementation of their commitments	(b) Recommendations to the Executive Body for further enhancing the ratification and implementation of the Convention's protocols and amendments to them	Working Group on Strategies and Review	
2.1.2	Synthesize policy-relevant information on the basis of information exchange at sessions of the Working Group on Strategies and Review and information received from scientific bodies and groups; extract messages and identify present and future policy needs	Report on present and future policy needs prepared for Executive Body sessions	Working Group on Strategies and Review	_
2.2	Techno-economic issues			
A.	Development and promotion of gu	idance documents		
2.2.1	Workshops in 2016-2017 to promote awareness and	Increased awareness of the control techniques for	Task Force on Techno-economic	US\$ 60,000 by European

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	understanding, in particular in countries of Eastern Europe, the Caucasus and Central Asia, of: (a) the Guidance document on control techniques for emissions of sulphur, NO _x , VOCs and particulate matter (including PM ₁₀ , PM _{2.5} and black carbon) from stationary sources (ECE/EB.AIR/117); (b) the Guidance document on control techniques for mobile sources (covering emissions of sulphur, NO _x , VOCs, dust (including PM ₁₀ , PM _{2.5} and black carbon) and heavy metals); and (c) Guidance document on best available techniques for controlling emissions of heavy metals and their compounds from the source categories listed in annex II to the Protocol on Heavy Metals (ECE/EB.AIR/116)	emissions from stationary sources and mobile sources, in particular in countries of Eastern Europe, the Caucasus and Central Asia Increased capacity to apply BAT to implement the latest amended Protocols	issues	Commission, partial coverage by Germany ^b
В.	Collection and analysis of data and	further development of method	dologies	
2.2.2	Further development a techno- economic tool as an evolution of the methodologies for evaluating costs in the Large Combustion Plants Sector and its promotion	Availability of tools for estimating the costs of implementing BAT and the requirements of the Gothenburg Protocol in different sectors	Task Force on Techno-economic issues	Covered by France
2.2.3	Promote the methodology and the related tool for the analysis of available GAINS scenarios to estimate the potential technical upgrade to be implemented by countries of Eastern Europe, the Caucasus and Central Asia for their compliance with the Gothenburg Protocol. Provide assistance and organize workshop/bilateral consultations for verification of the analysis and estimates with countries of the subregion	Analyses/estimates of the technical upgrade needed for compliance by target countries with the Gothenburg Protocol, verified with the countries	Task Force on Techno-economic issues	US\$ 10,000 ^b in addition coverage (in-kind) by Italy
2.2.4	Collect and provide up-to-date data for cost modelling for BAT	Updated data for electricity production and iron and steel sectors provided to CIAM for inclusion in GAINS	Task Force on Techno-economic issues	Covered by France

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
2.2.5	Examine costs and benefits of ammonia and other nitrogen emission abatement measures to improve the understanding of health-, climate- and environment-related linkages for nitrogen	Cost data on the effectiveness of ammonia and other nitrogen emission abatement measures provided to CIAM	Task Force on Reactive Nitrogen	US\$ 120,000 ^b
2.2.6	Annual Task Force meetings to exchange information on techno-economic issues and network	Meeting reports to the Working Group on Strategies and Review with policy- relevant messages and recommendations	Task Force on Techno- economic issues	US\$ 8,000 (travel) in addition to partial coverage from contribution by France and Italy
2.2.7	Continue to develop and promote the regional clearinghouse of control technology information for primary emissions of NO _x , sulphur dioxide, VOCs and PM, including SLCPs, heavy metals and POPs	Public availability of information on primary emissions of NO _x , sulphur dioxide, VOCs and PM, including SLCPs, heavy metals and POPs	Task Force on Techno-economic issues	Covered by France
2.2.8	Promote the Guidance document for estimation and measurement of VOCs emissions from activities covered by annex VI to the Gothenburg Protocol	Increased capacity in monitoring and calculation of VOCs emissions	Task Force on Techno-economic issues	Covered by France
2.2.9	Continue the work on the analysis of costs of VOCs emission reduction techniques in large industrial users of solvents	Methodology developed for cost estimation of VOCs emission reduction techniques	Task Force on Techno-economic issues	Covered by France
2.3	Nitrogen			
A.	Development and promotion of gu	idance and reference documents	1	
2.3.1	Further disseminate the publication of guidance document on preventing and abating ammonia emissions from agricultural sources (ECE/EB.AIR/120)	Publication disseminated and promoted in ECE member States	Task Force on Reactive Nitrogen through its national focal points	_
2.3.2	Prepare and disseminate the publication on nitrogen budgets with its annexes. Organize workshop to improve awareness and understanding	Publication of guidance document on national nitrogen budgets (ECE/EB.AIR/119); improved understanding of national nitrogen budgets (through a workshop)	Task Force on Reactive Nitrogen	US\$ 45,000 (workshop)
2.3.3	Further disseminate the ECE Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions (ECE/EB.AIR/129) and the related	The publication containing the Framework Code disseminated Increase in number of Parties to the Gothenburg Protocol having	Task Force on Reactive Nitrogen and its Expert Panel on Mitigation of	Covered by Denmark and Portugal with support from national focal

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	publication and work with national focal points to support its implementation	established a National advisory code on good agricultural practice to control ammonia emissions in line with the Gothenburg Protocol	Agricultural Nitrogen	points
2.3.4	Initiate the development of an ECE guidance document that describes a joined up approach to nitrogen management in agriculture and illustrates its co-benefits	Draft guidance document on nitrogen mitigation in agriculture taking into account synergies between ammonia, nitrates, nitrous oxide and other nitrogen compounds (including a related workshop)	Task Force on Reactive Nitrogen	US\$ 195,000 (including workshop) ^b
		Basis provided to start establishment of a "top ten" list of options for nitrogen mitigation measures		
В.	Collection and analysis of data; de	velopment and refinement meth	odologies and new	approaches
2.3.5	Continue to provide technical information on making and using nitrogen budgets	Summary document on benefits of establishing a national nitrogen budget with examples for countries submitted to the Executive Body Piloting the reporting of national nitrogen budgets with selected countries facilitated	Task Force on Reactive Nitrogen	With support from Denmark, Portugal and CIAM and in cooperation with CEIP (additional resourced are required to support piloting the reporting of national nitrogen budgets)
		Framework for establishing nitrogen budgets, nitrogen compounds and nitrogen-use efficiency submitted to EMEP		
2.3.6	Collect and assess information from national focal points regarding their experiences in developing and implementing an integrated approach at Task Force meetings and workshop(s) on implementation of the Gothenburg Protocol, in partnership with other regional nitrogen organizations	Workshop and annual Task Force reports to the Working Group on Strategies and Review with policy-relevant messages and recommendations	Task Force on Reactive Nitrogen	US\$ 50,000 (attendance of representatives/ experts from Eastern Europe, the Caucasus and Central Asia and workshop) in addition to partial coverage from contribution by Denmark, Portugal and Germany

C. Outreach to other communities, regions and cooperation with other organizations

Workplan item	ı Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
2.3.7	International framework for nitrogen management linking Convention activities with other conventions at the global scale, including understanding of linkages of air, water, climate and biodiversity targets in liaison with the UNEP Global Programme of Action for the Protection of the Marine Environment from Landbased Activities (GPA) and the Global Partnership on Nutrient Management	Input to the implementation of a global research programme on the nitrogen cycle, in cooperation with GPA, positioning ECE analysis in the global context	Task Force on Reactive Nitrogen	Covered by contribution from the Global Environment Facility (GEF) ^b
2.3.8	Develop and apply, in relation to workplan item 1.2.1., indicators of biodiversity targets in cooperation with the Convention on Biological Diversity (CBD) and the International Nitrogen Initiative	Nitrogen indicators in relation to biodiversity provided to CBD for inclusion in Aichi target-monitoring process	Task Force on Reactive Nitrogen	Covered by contribution from GEF ^b
2.3.9	Provide nitrogen-use indicators (e.g., nitrogen-use efficiency) related to multiple indicators of environmental quality, including water quality	Nitrogen-use indicators for selected transboundary water basins provided in cooperation with the ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the Black Sea Convention	Task Force on Reactive Nitrogen	Covered by contribution from GEF ^b in relation to countries of Eastern Europe, the Caucasus and Central Asia (additional funding required for other ECE subregions)
2.3.10	Provide technical information on the effects of human diets on nitrogen use and emissions and the associated synergies between environment, agriculture, health and diet	Report to the Working Group on Strategies and Review on possible synergies for linking dietary behaviour and nitrogen mitigation practices through the food system	Task Force on Reactive Nitrogen	Partially covered by in-kind contributions (additional resources are required to examine health and environment links between the Task Force on Reactive Nitrogen, the World Health Organization and the Food and Agriculture Organization of the United Nations

3. Compliance

17. In accordance with the Long-term Strategy, "the work of the Implementation Committee will be given a very high priority and the compliance mechanism will be improved" (para. 16 (b)). Any submission or referral made under paragraph 3 (b) of the Implementation Committee's functions (ECE/EB.AIR/113/Add.1, decision 2012/25, annex) will be dealt with as a priority. In this regard, the Committee will continue to review the progress made by the Parties in response to decisions taken by the Executive Body based upon the Committee's recommendations, as well as the need for possible additional measures for dealing with non-compliance on a case-by-case basis. Further, in accordance with its functions, the Implementation Committee will consider, as necessary, systemic issues relating to compliance that have been identified. On the basis of information provided by the secretariat, the Committee will evaluate the reporting by Parties on their emission and projection data. The Committee will continue its dialogue with appropriate bodies and experts, with a focus on improving communication with the technical bodies under the Convention.

Table 3 **Compliance**

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
3.1	Review compliance with reporting obligations: periodic review of compliance with Parties' reporting obligations, based on emission and projection data submitted to EMEP and available in the WebDab emission database	(a) Overview tables on status of reporting, for each of the seven protocols;	CEIP	Covered by EMEP mandatory contributions
		(b) Notes on reporting obligations submitted to the Implementation Committee twice a year; draft recommendations on reporting for consideration by the Implementation Committee	Secretariat	Regular budget
		(c) Review of information submitted by the secretariat; recommendations submitted to the Executive Body	Implementation Committee	_
3.2	Consider submissions and referrals: consideration of any submission or referral of possible non-compliance	(a) Emission data trend tables and updates provided to the secretariat	CEIP	Covered by EMEP mandatory contributions
	by an individual Party with any of its obligations under a given protocol	(b) Analysis of information provided by CEIP; communication with Parties in potential non-compliance;	Secretariat	contributions Regular budget — Covered by EMEP mandatory

^a Requires the provision of relevant experts.

^b Subject to funding availability.

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
		referrals; note on emission exceedances by Parties; overview of communications with Parties submitted to the Implementation Committee twice a year; correspondence with Parties		
		(c) Submissions and referrals by the secretariat reviewed at two annual meetings; decisions on additional information to be requested from Parties in potential non-compliance; recommendations on non- compliance submitted to the Executive Body	Implementation Committee	
3.3	Prepare an annual report on the Committee's activities to the Executive Body	Annual report with background, considerations and recommendations on compliance cases under review	Implementation Committee	_
3.4	Provide support to the Implementation Committee, where needed	Expert advice on selected issues provided where needed	All technical bodies, and in particular, the Task Force on Emission Inventories and Projections, the Task Force on Techno-economic issues and the Task Force on Reactive Nitrogen	
3.5	Review recommendations contained in Implementation Committee report	Decisions on non-compliance and related issues	Executive Body	_

4. Capacity-building to promote ratification and implementation in Eastern and South-Eastern Europe, the Caucasus and Central Asia

18. A viable future for the Convention depends upon positive and vigorous participation by the Parties in all parts of the region, and on ensuring its extensive geographical coverage. Capacity-building measures and activities will aim to achieve increased ratification and implementation of and compliance with the three amended Protocols and

"more active involvement of a greater number of Parties in the work of the Executive Body and the subsidiary bodies, including in the work of their bureaux, as well as in the technical and scientific groups" (Long-term Strategy, paras. 16 (a)–(n)) and 17 (a)). The activities will also support the implementation of the revised Action Plan for Eastern Europe, the Caucasus and Central Asia (ECE/EB.AIR/WG.5/2007/17). They will also aim to further raise the political profile of the Convention in countries of Eastern Europe, the Caucasus and Central Asia, and to raise awareness among decision makers of those countries on the environmental and health effects of air pollution and on pollution abatement measures and their high benefit-to-cost ratio.

Table 4
Capacity-building to promote ratification and implementation in Eastern and South-Eastern Europe, the Caucasus and Central Asia

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
4.1	Encourage ratification and implementation of the Convention and its protocols among the target countries, in particular the EMEP Protocol, the Gothenburg Protocol, the Protocol on Heavy Metals and the Protocol on POPs, and facilitate the information exchange and cooperation through: (a) providing training and technical advice on the national emission inventory improvement/development and preparation of Informative Inventory Report in accordance with the Guidelines for reporting emissions and projections data under the Convention (ECE/EB.AIR/125); (b) providing technical advice on calculating base year emission levels and emission reduction targets, as provided for by the amended Gothenburg Protocol, and making respective projections; (c) advisory services to provide analysis of national air quality management policies and legislation identifying gaps with respect to the Convention and its protocols requirements, costs and benefits implied, and providing recommendations on further steps towards ratification.	Improved reporting and information exchange by the target countries Workshops, consultations organized for national experts Meetings with national authorities to discuss the results of the analysis and recommendations made	Secretariat advised by recipient countries and contributing countries	US\$ 400,000
4.2	Advising the secretariat on relevant expertise/institutions in Eastern Europe, the Caucasus and Central Asia which could assist in delivering the activities under 4.1	Advice provided to the secretariat	Coordinating Group on the promotion of actions towards implementation of the Convention in Eastern Europe, the Caucasus and Central Asia (Coordinating Group)	
4.3	Annual sessions of the Coordinating Group (in cooperation with TFTEI and, potentially, other	Annual reports on progress to the Executive Body	Coordinating Group	US\$ 20,000 covered from contributions of

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	groups and bodies of the Convention) to exchange information, build capacity, network		TFTEI	the Russian Federation and other potential donors
4.4	Working sessions of the Coordinating Group on the margins of the sessions of the Executive Body and the Working Group on Strategies and Review	Reports on progress to the Executive Body	Coordinating Group	US\$ 5,500 covered from contributions of the Russian Federation and other potential donors
4.5	Strengthen the participation of countries in Eastern and South-Eastern Europe, the Caucasus and Central Asia in the work of the Executive Body and its subsidiary bodies by providing travel support	Participation of representatives of countries with economies in transition in the sessions of the Executive Body, its subsidiary bodies and other relevant meetings	Secretariat	US\$ 300,000

5. Communication and outreach

- 19. In accordance with the Long-term Strategy for the Convention, communication activities will be undertaken to highlight the work and benefits of the Convention. It sets out that "the bodies under the Convention should also actively contribute to an extensive and user-friendly communication strategy and system that highlights the work and benefits of the Convention. This communication strategy will in particular help to increase the visibility of the Convention and raise political awareness of pollution issues in countries of Eastern Europe, the Caucasus and Central Asia and South-Eastern Europe" (para. 16 (k)). Outreach activities will be undertaken to maintain the visibility of the Convention on the international scene, to foster cooperation between regional agreements around the world, and as a bridge between regional and global action. Cooperation with other regions and forums on intercontinental air pollution issues will be pursued.
- 20. Table 5 below does not repeat the communication/outreach tasks specifically assigned to any of the technical or subsidiary bodies and, as such, incorporated as items under the sections on Science and Policy in the workplan.

Table 5 **Communication and outreach**

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Workplan				Resource requirements
item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	and/or funding source

5.1 Internal communication

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
5.1.1	Improve internal communication, in particular within the Eastern Europe, the Caucasus and Central Asia subregion, to ensure efficient operation of the Convention, specifically to assess additional website needs by subsidiary bodies and to review	Improved operation of the Convention List of possible additional websites and related communication needs with cost estimates	additional ated	_
	current formal and informal communication practices			
5.2	External communication			
5.2.1	Raise public awareness of the Convention and overall visibility of air pollution issues throughout the ECE region and beyond through press releases, publication of leaflets, articles and other materials, as necessary; focus on production of electronic versions (considering resource constraints on printing); make use of social media platforms where appropriate	Increased availability of communication materials and increased public awareness about the Convention; availability of information on air pollution issues in a user-friendly manner on the website	Secretariat	
	Disseminate relevant information provided by the Convention's scientific bodies, in particular non-technical summaries with clear conclusions, recommendations and interesting facts, also for external audiences			
	Manage the Convention's website as the main channel for communications for communication to the public; improve the Convention's website (within formal ECE limitations) in this respect; add non-technical content understandable to the general public			

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
5.2.2	Raise awareness on air pollution, its environmental and health effects, as well as on abatement measures, the Convention and its protocols, among the countries of Eastern Europe, the Caucasus and Central Asia through translation of relevant documentation and communication materials into Russian (priorities to be established by the Coordinating Group), and the further development and maintenance of the website in Russian, as relevant	Availability of information materials in Russian; increased awareness of the Convention in countries of the subregion	Secretariat/ Coordinating Group	
5.3	Outreach			
5.3.1	Contact other regional networks and agreements to determine if and to what extent they are interested in collaborating with the Convention on common goals, and with due consideration of a possible enlarged cooperation at the strategic/policy level with other regions and the global community in the longer term	Maintain contact with other regional networks and agreements	Executive Body Bureau/ secretariat	
5.3.2	Pursue opportunities for scientific cooperation, maintain or establish contacts, as relevant, with other regional and global organizations, in particular those addressing issues of importance for air quality (e.g., the World Health Organization, WMO, UNEP, UNFCCC, IPCC, the World Climate Research Programme, the International Maritime Organization, the Stockholm Convention on Persistent Organic Pollutants, the Minamata Convention on Mercury, CBD, the Arctic Council, the Acid Deposition Monitoring Network in East Asia (EANET) and the Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects	Cooperation with other international organizations, leading to improved understanding, information or data exchange	Secretariat/ ad hoc group/ technical bodies	US\$ 15,000 (travel)

Workplan item	Activity description/objective	Expected outcome/deliverable	Lead body(ies)	Resource requirements and/or funding source
	for South Asia)			
	Help develop links for collaboration and sharing of data and information			
5.3.3	Reach out to other regions through participation in key regional and international events and processes, including the Global Atmospheric Pollution Forum, to raise awareness and foster cooperation	Improved awareness of the Convention's role in addressing regional air pollutants and lessons from that experience that could be used by international efforts in other regions or contexts	Secretariat	US\$ 15,000 (travel)
5.3.4	Promote awareness of the Convention, as relevant, with other ECE multilateral environmental agreements and programmes	Improved awareness by other ECE programmes about the Convention and the linkages between air pollution and relevant cross- sectoral issues	Secretariat	_