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**Economic Commission for Europe**Executive Body for the Convention on Long-range  
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Monitoring and Evaluation of the Long-range  
Transmission of Air Pollutants in Europe****Working Group on Effects****Second joint session\***

Geneva, 13–16 September 2016

Item 14 of the provisional agenda

**Progress in activities in 2016 and further development  
of effects-oriented activities****Effects of air pollution on Health \*\*****Report by the Joint<sup>1</sup> Task Force on the Health Aspects of Air Pollution  
on its nineteenth meeting***Summary*

The present report is being submitted for the consideration of the second joint session of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) Steering Body and the Working Group on Effects in accordance with the request of the Executive Body for the Convention on

\* 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.

<sup>1</sup> The Task Force is a joint body of the World Health Organization (WHO)/European Centre for Environment and Health (ECEH) and the Executive Body for the Convention on Long-range Transboundary Air Pollution.



Long-range Transboundary Air Pollution in the 2016–2017 workplan for the implementation of the Convention (ECE/EB.AIR/133/Add.1, items 1.1.1.7, 1.1.1.17–1.1.1.19 and 1.1.3.1–1.1.3.3).

The report presents the results of the discussions on the health impacts of ambient air pollution as well as a summary of progress on the other workplan items discussed at the Task Force’s nineteenth meeting (Bonn, Germany, 18–19 May 2016).

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## I. Introduction

1. This report summarizes the discussions and results on the health impacts of ambient air pollution presented at the nineteenth Meeting of the Joint Task Force on the Health Aspects of Air Pollution (Task Force on Health) of the World Health Organization (WHO)/European Centre for Environment and Health (ECEH) and the United Nations Economic Commission for Europe (ECE) Executive Body for the Convention on Long-Range Transboundary Air Pollution (Convention). The report also provides a summary of other work plan items discussed at the Task Force meeting, in accordance with the 2016–2017 work plan for the implementation of the Convention (ECE/EB.AIR/133/Add.1) adopted by the Executive Body at its thirty-fourth session in December 2015.

2. The nineteenth Task Force on Health meeting was held in Bonn, Germany on 18–19 May 2016. Altogether, 50 experts from 34 Parties to the Convention attended the meeting, in addition to a representative of the secretariat of the Convention. The European Union, a Party to the Convention, was represented by the European Commission. The meeting was chaired by Ms. Marie-Eve Héroux (WHO/ECEH) and co-chaired by Ms. Branislava Matic Saviecevic (Serbia). Ms. Nadia Vilahur (WHO/ECEH) acted as a rapporteur. Temporary advisors from the University of Utrecht (The Netherlands), the Regional Health Service of Lazio (Italy), the Institute of Public Health of Serbia (Serbia), the Swiss Tropical and Public Health Institute (Switzerland), King's College London (the United Kingdom of Great Britain and Northern Ireland) and the Health Effects Institute (the United States of America) were also present. Six observers were present at the meeting, including the International Institute for Applied Systems Analysis (IIASA, Austria), the Health Effects Institute (US) and the French Agency for Food, Environmental and Occupational Health and Safety (ANSES, France), among others. Financial support of the Swiss and German governments to the meeting is acknowledged.

3. An update on progress of WHO activities related to the Task Force was presented. Participants to the Task Force were informed on recent and ongoing publications; the 2015 joint WHO/OECD “Economic cost of the health impact of air pollution in Europe: clean air, health and wealth”,<sup>2</sup> the recently published “Health risk assessment of air pollution — general principles for policy makers”, available both in English and in Russian,<sup>3</sup> and a publication in development on the history of the WHO Air Quality Guidelines (AQGs). In addition, the Task Force has provided input in the development of two different reports, on “Trends in ecosystem and health responses to long-range transported atmospheric pollutants”,<sup>4</sup> and “Towards Cleaner Air: Scientific Assessment Report 2016”<sup>5</sup> and its Summary for Policymakers,<sup>6</sup> mainly targeted to politicians and decision makers, presenting achievements to date, remaining challenges and knowledge gaps, and benefits of further abatement measures and synergies with other policy areas, including as well some health considerations.

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<sup>2</sup> See [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0004/276772/Economic-cost-health-impact-air-pollution-en.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0004/276772/Economic-cost-health-impact-air-pollution-en.pdf?ua=1).

<sup>3</sup> See <http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications>.

<sup>4</sup> See <http://www.icp-waters.no/LinkClick.aspx?fileticket=XaemU1AmKaY%3d&tabid=36>.

<sup>5</sup> See <http://www.unece.org/environmental-policy/conventions/envlrapwelcome/publications.html>.

<sup>6</sup> Ibid.

## II. International policies and processes on air quality and health

### A. Updates from ECE, European Union and WHO activities

4. A representative of the Convention's secretariat presented the latest work of the European Monitoring and Evaluation Programme (EMEP) and the Working Group on Effects, and summarized the key messages of the recent "Towards Cleaner Air: Scientific Assessment Report 2016" on air pollution. The Task Force was updated on the thirty-fourth and thirty-fifth sessions of the Executive Body and the activities of the Working Group on Strategies and Review. A number of guidance documents to support implementation and capacity building activities led by ECE were presented. The need for greater outreach within and beyond the ECE region on matters related to air pollution was stressed, by means of interagency cooperation among other initiatives. Finally, general information was presented on the activities related to the theme "improving air quality" as part of the Eighth Environment for Europe Ministerial Conference in Batumi, Georgia, 8–10 June 2016.

5. The representative of the European Union provided an update on the Clean Air for Europe Programme. The increasing awareness on matters concerning air pollution and associated health risks was recognized. However, a large proportion of Europeans are still exposed to levels of air pollution above the European Union standards and several Member States to date are struggling in respecting the 2010 emission limits included in the National Emission Ceilings Directive. The European Commission has started legal action for a number of MSs in relation to non-compliance with nitrogen dioxide (NO<sub>2</sub>) and particulate matter with a size less than or equal to 10 microns in diameter (PM<sub>10</sub>) ambient air quality standards. Compared to the baseline in 2005, the strategic ambition of the Clean Air Programme envisions reducing the number of premature deaths due to air pollution by 33 per cent by 2020, by means of achieving compliance with existing legislation across Europe, and up to 52 per cent by 2030, as most Members States would reach levels of fine particulate matter (PM<sub>2.5</sub>) close to the current WHO AQGs. The implementation of European legislation on air quality will need to be supported by continued monitoring in countries and the development of specific management plans in countries. The European Union stressed the need to continue developing the knowledge base to support air quality policy, such as the update of the WHO AQGs or improved exposure assessment methods and tools for air pollutants like NO<sub>2</sub>.

6. WHO informed the Task Force on relevant regional and global activities in relation to air quality and health. The proposed road map for implementation of the First World Health Assembly Resolution on Air Pollution and Health, adopted in May 2015, was presented at the sixty-ninth World Health Assembly.<sup>7</sup> The road map reflects four elements key to enhancing the global response to the adverse health effects of air pollution: expanding the knowledge base, monitoring and reporting, global leadership and coordination, and institutional strengthening. It is also aligned with the health-relevant indicators included in the United Nations Sustainable Development Goals, to be achieved by 2030. A new WHO publication on prevention of disease through healthy environments was announced,<sup>8</sup> as well as the release of the updated global air quality in cities database<sup>9</sup>

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<sup>7</sup> See [http://apps.who.int/gb/ebwha/pdf\\_files/WHA69/A69\\_18-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_18-en.pdf).

<sup>8</sup> See [http://www.who.int/quantifying\\_ehimpacts/publications/preventing-disease/en/](http://www.who.int/quantifying_ehimpacts/publications/preventing-disease/en/).

<sup>9</sup> See [http://www.who.int/phe/health\\_topics/outdoorair/databases/cities/en/](http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/).

and the upcoming release of new burden of disease estimates for ambient air pollution for the year 2014, providing estimations of premature mortality due to air pollution at global, regional and national levels. Also, WHO/Europe will take an active role by organizing a side-event on “Clean Air for Life” at the Eighth Environment for Europe Ministerial Conference.

## **B. Commitments on air quality and health**

7. WHO summarized the existing commitments relevant for air quality and, in anticipation of the next Ministerial Conference on Environment and Health planned in 2017 framed a number of questions for discussion at the Task Force designed to gather participants’ views on the possible to formulation of a region-wide policy commitment. These questions addressed the most relevant components to be included, how to ensure synergies between all existing commitments, the added value of regional commitments and tools to be used for implementation. The Task Force identified the importance of creating synergies between existing commitments and policies in air pollution and other areas such as climate change or cities, among others. The empowerment of the health sector as a result of the World Health Assembly resolution was emphasized, as a much needed framework for the actions to be taken by the health sector. In addition, regarding the involvement of the health sector, the policy framework of Health 2020<sup>10</sup> was also deemed useful, as it aims to support action across government and society. In relation to the need for better synergies, several Member States representatives pointed out that the European Environment and Health Process may serve as the joint platform, in alignment with Health 2020, for the update or development of necessary national action plans on air quality and health, especially in some countries where only regional level action plans exist. Finally, there was a general agreement of the importance of increasing ratification by the Member States of the Convention and its various protocols, in particular the Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone (Gothenburg Protocol), with a focus on countries outside the European Union.

## **III. Health impacts of air pollution**

### **A. Review of the progress in research**

8. The latest estimates of the burden of disease due to air pollution from the Global Burden of Disease (GBD) 2013 project were presented.<sup>11</sup> A combination of satellite-based estimates, chemical transport modelling, and measurements from a global database of ground-level monitors were used to estimate annual average levels of PM<sub>2.5</sub> at a 10 km x 10 km scale. Then, a concentration response function, called the Integrated Exposure Response function (IER) was used to estimate the risk of increased mortality from these estimated exposures to PM<sub>2.5</sub>. The IER combines estimates of the relative risk (RR) from exposures to PM<sub>2.5</sub> in ambient air, from cigarette smoking, from second-hand smoke and from household air pollution, to represent the risks from exposure to a broad range of PM concentrations. Results showed that, altogether, air pollution contributed to 10 per cent of global mortality in 2013, representing the fourth highest global risk factor after diet, high blood pressure and

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<sup>10</sup> See [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0009/169803/RC62wd09-Eng.pdf](http://www.euro.who.int/__data/assets/pdf_file/0009/169803/RC62wd09-Eng.pdf).

<sup>11</sup> See [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)60692-4/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60692-4/fulltext).

tobacco smoke. Finally, the recent GBD MAPS project was announced, which aims to produce ambient air pollution (PM<sub>2.5</sub>) source-specific current and predicted mortality estimates, mainly from coal burning, in China, Eastern Europe and India, using the GBD methodological approach.

9. The Task Force was also informed about three large studies that have recently been funded by the Health Effects Institute, to study the effects on health of low level air pollution. These projects, led by research teams from Canada, Europe and the United States, will benefit from data including mortality and incidence for a number of health outcomes, drawn from large population census or established cohorts. Hybrid air pollution exposure models will be developed for a number of pollutants by combining satellite data, chemical transport models, land use variables, and monitoring data to estimate exposure at high spatial resolution, taking into account residential mobility. These studies will help better characterize exposure response functions at the lower ranges of air pollution exposure. The European project, ELAPSE, was presented in greater detail. Coordinated by the University of Utrecht (The Netherlands), the study will focus on estimating the mortality and morbidity effects of long-term exposure to low-level PM<sub>2.5</sub>, Black Carbon, NO<sub>2</sub> and ozone (O<sub>3</sub>) by analyzing data from a large number of European cohorts, including six administrative cohorts, distributed across Western Europe.

10. The Task Force heard a report on an ongoing project commissioned from the European Commission to a group of researchers from Flemish Technological Research Institute (VITO, Belgium) and King's College London (UK). The overall project objective, to be completed by end of 2017, is to develop improved methods and tools for assessment of exposures to NO<sub>2</sub>, and related health consequences for the purpose of developing health impact assessments (HIAs) and supporting cost-benefit analysis in the European policy context. A number of challenges and steps forward in this ongoing project, both from the health and exposure assessment perspective, were discussed in a recent expert consultation and summarized at the meeting. These included considerations regarding the spatial scales, the choice of cut-offs for quantification of health impacts and the use of specific concentration-response functions (CRFs), in addition to issues regarding data availability at a European wide scale.

11. The results of several studies conducted by the Italian regional health service in Lazio were presented to the Task Force. The first study, VIIAS, is a national HIA of PM<sub>2.5</sub> and NO<sub>2</sub> for Italy, that compares, comparing the effects of these pollutants on premature mortality under a different set of past, current and future scenarios, and shows an important negative health impact from air pollution in this country. The most affected areas included the north of the country (Po valley), the congested urban and the industrial areas. Another study focused on short-term effects of ultrafine particles on cause-specific mortality between 1999 and 2013 across eight European cities. The analyses included single and two pollutant models, and could not find statistically significant associations of ultrafine particles with mortality. An ongoing study is being conducted in Rome on the effects of long term exposure to PM<sub>10</sub>, PM<sub>2.5</sub>, as well as the metals present in these fractions in the urban residential population. Findings from this study are expected to provide new insights into the toxicity of specific components in the particle mixture.

12. WHO informed the Task Force of its process for updating the Air Quality Guidelines for ambient air pollutants, which was initiated in 2016, and anticipated to take four years. The project is supported to date by the European Commission (DG-Environment) and the governments of Germany, Switzerland and the US. The AQG update project arose in response to an increasingly relevant global public health need for up to date, evidence-based recommendations to support effective decision making in relation to

air quality management, clearly articulated by requests from Member States at the 2015 World Health Assembly. The development of the guidelines will follow the procedures described in the second edition of the WHO Handbook for Guideline Development,<sup>12</sup> to ensure a final product that is free of biases and that meets public health needs. Accordingly, WHO organized an expert consultation in Bonn, Germany, during September 2015, to gather views on a number of issues and priorities to be considered in relation to the topic of these guidelines.<sup>13</sup> Currently, a number of groups are being established, with different roles and responsibilities, such as project coordination, development of appropriate methodologies and systematic reviews, elaboration of recommendations or external peer-revision. A first formal expert meeting for the development of the guidelines is planned for September 2016.

13. As a continuation of a project initiated in 2015 and upon a specific request from WHO, the Swiss Tropical and Public Health Institute is currently developing a compilation of air quality standards in place globally for the classical air pollutants (PM: PM<sub>2.5</sub>, PM<sub>10</sub> and other relevant size fractions if available, O<sub>3</sub>, NO<sub>2</sub>, sulphur dioxide (SO<sub>2</sub>) and carbon monoxide (CO). The limit values, their averaging times (yearly, daily, or others) and the year in which they were set and last revised are being systematically gathered. Data is retrieved from published and grey literature, search of reports from international or national agencies, contact with country representatives, etc. Preliminary data were presented at the Task Force, which, in general, show that there is variability in the existence of standards for the different pollutants. The values recommended in the current WHO Air Quality Guidelines seem seldomly to be directly transposed in legislation, as other factors (economic, political, technical and social...) seem to be the main drivers in setting standards. The project is ongoing, and expects to provide a global view of air quality management regulations for ambient air worldwide.

14. The Health and Environment Alliance (HEAL) has published a new technical report<sup>14</sup> on the health effects and associated economic costs derived from coal fired power generation in the Western Balkans. The HIA is based on the recommendations provided by the WHO "Health risks of air pollution — HRAPIE" project,<sup>15</sup> and takes into consideration air pollutant emissions from coal and lignite combustion in Bosnia and Herzegovina, Kosovo, Macedonia, Montenegro and Serbia, from a total of 50 power generation plants, including both existing and planned stations that are expected to meet the standards required under the European Union's Industrial Emissions Directive (IED). The objective of the study is to stimulate the debate on energy choices in the areas of study; by showing that coal fired generation of power, especially for the existing old plants, generates a significant burden on health.

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<sup>12</sup> See [http://www.who.int/kms/handbook\\_2nd\\_ed.pdf](http://www.who.int/kms/handbook_2nd_ed.pdf).

<sup>13</sup> See [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0013/301720/Evidence-future-update-AQGs-mtg-report-Bonn-sept-oct-15.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0013/301720/Evidence-future-update-AQGs-mtg-report-Bonn-sept-oct-15.pdf?ua=1).

<sup>14</sup> See [http://env-health.org/IMG/pdf/technical\\_report\\_balkans\\_coal\\_en\\_lr.pdf](http://env-health.org/IMG/pdf/technical_report_balkans_coal_en_lr.pdf).

<sup>15</sup> See [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0017/234026/e96933.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0017/234026/e96933.pdf?ua=1).

## **B. Monitoring and modelling of air pollution and its health impacts in countries**

15. The WHO Regional Office for Europe launched AirQ+, a software to support experts, policy makers and other stakeholders in quantifying the health impacts of long and/or short-term exposure to air pollution in a given population for a number of air pollutants including PM, black carbon, ozone, nitrogen dioxide and household air pollution from solid fuel use in relation to several well recognized health outcomes.<sup>16</sup> Calculations are based on the concentration — response functions provided by epidemiological studies and summarized in the WHO HRAPIE project. AirQ+ is an updated and enhanced version of the previous AirQ software, released between 2000 and 2004. A preliminary literature review shows that over 50 publications of different nature (e.g. journal articles, reports, theses etc.) were issued between 2000 and 2016 using AirQ for health risk assessment of air pollution purposes, mostly in countries of the European Region but also in Asia and elsewhere.

16. An example of application of the new AirQ+ software in Serbia was presented at the meeting. The number of attributable deaths due to PM<sub>2.5</sub> and ozone in 2013 were calculated in the city of Belgrade in comparison with different pollutant reduction scenarios. National users expect that the AirQ+ tool will enable their countries to conduct more research on air pollution health effects and economic impacts to support policy development, as well as enhance the reporting of health data and air pollution monitoring.

17. A perspective on potential use of this new, freely available on-line tool beyond the European Region was also provided to the Task Force. In the coming months, WHO will be releasing new estimates of modelled ambient air pollution, based on integration of data from satellite sensing and ground monitoring, and associated burden of disease at global, regional and country levels. The increased global awareness on air pollution health effects is expected to trigger an interest in using the AirQ+ tool in many other WHO Regions.

18. The Task Force was informed on a number of recent scientific reports and activities developed by the French Agency for Food, Environmental and Occupational Health & Safety (ANSES) in relation to air quality (indoor and outdoor) and occupational risks. Regarding outdoor air, ANSES is currently finalizing a priority list of pesticides present in air and general guidelines for the implementation of a wide monitoring of these pollutants in air in France. A review of the health effects related to chemical constituents of PM taking into account the various sources (results expected by 2017), and an ongoing evaluation of the health benefits and/or potential adverse effects of the use of face masks in different air pollution exposure settings, are also under way. Finally, ANSES has been requested by the French Ministry of Social Affairs and Health to identify emerging pollutants present in air (due to new technologies, for example), that are currently unregulated and that could be problematic for health and/or the environment. Future work of ANSES will include, *inter alia*, the characterization of outdoor air pollution transfers to inside buildings and the evaluation of health impacts of pollens and mould in ambient air in the French territories overseas.

19. The United Kingdom (UK) Committee on the Medical Effects of Air Pollutants (COMEAP) secretariat provided an update on recent activities conducted since March 2015. The work on the differential health effects of PM according to source or components

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<sup>16</sup> See <http://www.euro.who.int/en/airqplus>

concluded that the evidence was insufficient to determine whether reduction of one component of PM would improve health more than targeting other components. Also, a report on quantification of health effects from ground-level ozone recommended concentration-response coefficients for short-term exposure to ozone (daily maximum 8-hour running mean) and different health outcomes (all-cause mortality, all respiratory hospital admissions and all cardiovascular hospital admissions) in all ages. COMEAP did not find convincing evidence of a threshold for mortality or hospital admissions effects and daily maximum 8-hour running mean or of non-linear relationships at low concentrations. Further, the Committee did not recommend quantification of the adverse health effects of long-term exposure to ozone. A systematic review finalized by COMEAP in April 2016 on long-term exposure to ambient air pollution and chronic bronchitis (cough and phlegm) pointed towards the existence of an association with long term exposure mainly to PM, but the evidence was not sufficient to imply a causal relationship. Therefore, this health outcome was not recommended to be included in core health impact assessments. The Committee also recognized that the evidence of an association of NO<sub>2</sub> with health effects has strengthened significantly. An interim report was published in December 2015 and further work is currently underway by COMEAP, which will include interpretation of the extent to which associations of long-term exposure to NO<sub>2</sub> and PM<sub>2.5</sub> with mortality are independent to one another, the influence of the spatial scale of modelled NO<sub>2</sub> concentrations in estimating health impacts, determining NO<sub>2</sub> concentration cut-offs for use in quantification, and whether and how mortality estimates calculated on the basis of NO<sub>2</sub> and PM<sub>2.5</sub> should be combined in order to avoid double counting and overestimation of effects. Currently, research is ongoing to quantify effects from long-term exposure to air pollution and cardiovascular morbidity in the UK (both estimates of burden and impact of policy initiatives).

20. As a new country attending the Task Force meeting, a representative from Lithuania was invited to provide an overview of the situation in the country in relation to air pollution monitoring and associated health impacts. The existing ambient air quality measurement network in the country was presented to the Task Force. High PM<sub>10</sub> and benzo(a)pyrene concentrations were recognized as the predominant air quality problems in Lithuanian cities, especially during the summer periods as a result of traffic-associated and road dust pollution, and in the cold season due to increased emissions from residential heating. Concentrations of other monitored pollutants (NO<sub>2</sub>, SO<sub>2</sub>, carbon monoxide, heavy metals and benzene) in the period 2012–2015 did not exceed the European Union limits or target values. The Lithuanian national regulation has established an alert and an information threshold for different air pollutants according to the values defined by the 2008/50/EC directive. When these levels are reached, the general public is informed about air quality and its health effects and recommended precautions (indicated vulnerable groups) via internet, radio, television, press and other media. Also, an Air Quality Index is being used to help the population avoid or reduce harmful effects on health by providing behavioral recommendations, some addressed specifically to vulnerable groups. Finally, results from a HIA on short and long term exposure to particulate air pollution and mortality in 2009, conducted in the cities of Vilnius and Kaunas and using the AirQ software, were presented.

#### **IV. Communication and public health messages for air pollution**

21. At its seventeenth meeting in 2014, the Task Force proposed to add an agenda item on communication and public health messages related to air pollution within the Parties to the Convention. This request has been maintained, and the 2016 Task Force meeting therefore included a session to update the Task Force on ongoing activities by WHO, the

European Commission and Member States regarding methods of communicating the health risks from air pollution, the assessment of the feasibility for harmonization of the information across Europe, for example, in the form of an European Union Air Quality Index, and to present and discuss new publications of relevance to the topic.

22. The WHO presented results on a survey on the availability of public health messages for ambient air pollution in Parties to the Convention, developed by the WHO Regional Office for Europe in 2014. The aim of the survey is to collect input from national representatives to the Task Force on what communication systems are available in the different countries, and how air pollution risks are communicated to the general population as well as to vulnerable subgroups. Under a specific request by the Parties to the Convention at the 2015 Task Force meeting, the on-line survey consisting of 8 short questions was re-opened during September 2015 for additional participants to provide their answers. As a result, responses were obtained for 25 out of 36 parties (plus the European Commission), representing a 68 per cent response rate, and showed that, although information systems are in place in all of these parties, there is varying geographical coverage and differences in pollutants covered, and in the frequency and detail of reporting. Dissemination of information occurs either (only) when air quality limits are exceeded and, in some cases, on a general basis. In general, separate messages are developed for general population and groups at risk. Some countries specifically mentioned the existence of information and alert thresholds as laid down in the European Union Directive 2008/50/EC, while in a number of parties messages are based on the levels of more than one pollutant expressed as an index and communicated through a scoring system and/or a colour scale. The survey produced a valuable overview of the communication and public health messages used by different parties for air pollution episodes.

23. The development of communication strategies to raise awareness and inform the public on the risks related to air pollution remains essential. For that, a number of challenges were highlighted, such as the importance of conveying the message that there are health impacts, due not just to peak levels, but also to long-term exposure to elevated levels of air pollution; the need to diversify the messages related to air pollution risks through different channels to reach a broader range of audiences including vulnerable groups; the challenge of gaining the trust of the public by carefully choosing the appropriate group that is delivering the message (e.g. politicians, medical practitioners, scientists, patients associations); and the importance of increasing individuals' engagement in the issue and their willingness to change to healthier behaviours. Finally, areas that need to be further enhanced include the availability of air quality monitoring data and the coherence across public messages for overlapping events (e.g. air pollution peaks, heat waves or fires) for the purpose of better communication of risks and the harmonization of messages addressed to the public.

24. The European Union is currently exploring a harmonised European Union-wide ambient air quality index (AQI), building i.a. on experience from the Member States. This project responds to the concerns of European citizens regarding poor air quality, difficulty of obtaining comparable information across the European Union countries. As a scoping exercise, a total of 21 AQIs have been reviewed, to help define the needs of the new European Union AQI. Following a stakeholder consultation held in June 2015, a first prototype of the European Union-AQI has been created, addressed to the general public and local governments, which includes information on four 'core' air pollutants: NO<sub>2</sub>, O<sub>3</sub>, and particulate matter as PM<sub>10</sub> and PM<sub>2.5</sub> (and optionally SO<sub>2</sub>). Out of the 'core' group of pollutants, the one with the highest concentration compared to its corresponding limit value will be taken as the overall AQI. The index consists of five possible different bands with

distinctive colour codes, associated with a message ranging from very good to very bad. The band break points, related to scientific understanding of health effects and European Union standards, were presented and discussed at the Task Force. The tool also provides a short-term forecasting option and historical summaries for the particular locations of interest to users. Next steps in this project will address outstanding issues related to administrative settings for the AQI (i.e. who will host the AQI); or how to expand the tool (in consultation with Member States and WHO) to include a health dimension, which may also provide specific advice to the population.

25. The representative of the French Ministry of Social Affairs and Health updated the Task Force on recent activities regarding the development of recommendations in relation to the presence of pollen in air, and communication of air quality and health risks addressed to general practitioners. Responding to a specific request from the Ministry, the French High Council of Public Health set up a working group of experts to: i) determine whether pollen standards (i.e. pollen counts) could be set, and if so for which types of pollen, and ii) draft proposed standards with recommendations on information and risk management actions to be implemented when pollen counts exceed these limits. An opinion by this group was published in April 2016, where a number of vegetal species of greater concern are identified and specific messages for different audiences (general population, healthcare professionals and allergic individuals) provided, along with information on useful web-based information resources for the different groups. Also, an overview of an ongoing project lead by the association “Médecine&Innovation” was presented, with the objective to design a communication strategy, specifically addressed towards health professionals (and in particular general practitioners), to increase awareness of the health impact of outdoor and indoor air pollution, and recommend best available practices to protect people’s health.

26. The UK’s Royal College of Physicians and Royal College of Paediatrics and Child Health, in collaboration with a number of invited experts, released in February 2016 a new report addressing the lifelong impact of air pollution,<sup>17</sup> to increase awareness on health effects and support actions to reduce emissions. The report emphasizes that air pollution can impact health over the full life-course of individuals in many different ways, and conveys the key message that the medical profession needs to be more aware of the effects of air pollution, to better address the cause as well as treating the symptoms. Also, the report presents the health burden and estimated costs attributed to outdoor and indoor air pollution in the UK.

## **V. Current activities and workplan for Task Force for 2016–2017**

27. The proposed Task Force work plan for 2016–2017 includes the following main activities:

(a) The review of the progress in research on health impacts of air pollution, including the presentation of important research findings from different countries and the reporting on the progress achieved in the revision of the WHO Air Quality Guidelines;

(b) The monitoring and modelling of air pollution and its health impacts in countries, with a focus on Eastern Europe, the Caucasus and Central Asia, including the

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<sup>17</sup> See <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>

progress on capacity building and outreach activities related to the recently launched AirQ+ tool for quantification of effects of air pollution; and

(c) The communication and public health messages related to air pollution, including the presentation of Member States initiatives regarding methods of communicating the health risks from air pollution.

## **VI. Cross-cutting issues**

28. Participants in the Task Force recognized as a priority the need to continue and further enhance monitoring ground levels of air pollutants, especially PM<sub>2.5</sub>, in areas where people live. New technologies such as satellite-based measurements can help complement, but not replace, ground-level monitoring where that is scarce or unavailable. The collection of relevant health information also needs to be improved across the whole of Europe to support the conduct of air pollution health impact assessments (for example, using tools such as the WHO AirQ+ software). Recognizing the need to strengthen capacities across Parties to the Convention, training activities, like the WHO workshop on use of AirQ+ following the nineteenth Task Force meeting, are planned.

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