

## THE PEP 2015 Symposium

### **Reducing transport-related emissions for a better environment and human health**

*Draft Concept note prepared by the secretariat*

#### *Summary*

At its seventh session (Geneva, 22–23 October 2009), the Steering Committee of the Transport, Health and Environment Pan-European Programme (THE PEP) discussed how more actively to engage member States and other stakeholders on priority issues for THE PEP (ECE/AC.21/SC/2009/7–EUR/09/5088363/7, para. 8). To that end, the Committee agreed that, beginning with its eighth session, in-depth discussions, or symposia, would be organized, including speakers from the private sector, academia, government and civil society (ECE/AC.21/SC/2009/8–EUR/09/5088363/8, para. 46).

Topics would be in line with the four priority goals of the Amsterdam Declaration, adopted by the Third High-level Meeting on Transport, Health and Environment (Amsterdam, 2009) and address one goal per year. With the adoption of the Paris Declaration by the Fourth High-level Meeting (Paris, 2014), Goal 5 (“To integrate transport, health and environmental objectives into urban and spatial planning policies”) was added. Following the Fourth High-level Meeting, the extended Bureau of THE PEP Steering Committee confirmed the wish to continue holding THE PEP Symposia and, at its twelfth session, the Committee entrusted the Bureau to decide on the topic for the Symposium in 2015, recalling that topics of related processes could also be considered (ECE/AC.21/SC/2014/6–EUDCE1408105/1.6/SC12/6). At its twenty-sixth meeting, the Bureau confirmed that the new format with only one keynote speech and fewer panellists was an improvement over previous years. The Bureau decided that the topic for the 2015 Symposium would be Goal 3 (“To reduce emissions of transport-related greenhouse gases, air pollutants and noise”).

THE PEP 2015 Symposium will be held on 17 November 2015 in the Palais des Nations, Geneva, Switzerland, beginning at 3 p.m. This concept note was prepared by the secretariat to provide the background on the issues to be covered by the 2015 Symposium and the proposed content of the Symposium.

## I. Introduction to the issues

### A. Transport trends impacting health and environment

1. *The challenges.* Current estimates of the joint effects of ambient and household air pollution include an estimated 7 million premature deaths globally each year, representing one in eight of the total deaths worldwide.<sup>1</sup> Emissions of air pollutants from transport have generally declined over the past two decades. However, around 90% of city dwellers in the European Union (EU) are still exposed to air pollutants at levels deemed harmful to health by the World Health Organization (WHO), and transport is a large contributor to this. Available evidence on air pollution emission sources suggests that, across the WHO European Region as a whole, several sectors should be targeted for abatement policies. Motorized road transport, household fuel combustion together with agriculture and industrial coal burning sources are of special concern, in terms of their contribution to the health impact of ambient and household air pollution, and the consequent societal costs.

2. *Air pollution and its health effects.* In 2014 the World Health Organization (WHO) published its latest estimates of the burden of disease related to ambient (outdoor) and household (indoor) air pollution. Specifically, 482,000 premature deaths are attributable to ambient air pollution. The majority of these deaths are due to cardiovascular, cerebrovascular and respiratory diseases, as well as lung cancer. The International Agency for Research on Cancer (IARC) declared air pollution as carcinogenic to humans.<sup>2</sup> In 2015, WHO added an economic valuation of this burden for Europe, estimating the overall annual economic cost of health impacts and mortality from air pollution, including estimates for morbidity costs, at US\$ 1.575 trillion.<sup>1</sup>

3. The UNECE Sustainable Transport Division issued a discussion paper on diesel engine exhausts myths and realities, contributing to the ongoing debate about the harmful effects of diesel engine exhaust emissions on human health and the environment. Since 1990, emissions from the combustion-related sectors 'Energy production and distribution', 'Energy use in industry' and 'Road Transport' have reduced significantly, contributing 39 per cent, 25 per cent and 20 per cent respectively of the total reduction in sub-10µm particulate matter emissions.

4. *GHG emissions from the transport sector.* Transport is highly dependent on oil. Virtually all the energy used in transport - 95% of all kilometres travelled - (both passenger and freight) in the EU are powered by oil derived fuels. The combustion of this oil releases pollution in the form of emissions, which place significant burdens on human health and the environment. In 2012, the transport sector (including bunker fuels) accounted for 24.3% of total EU GHG (greenhouse gas) emissions.<sup>3</sup> Globally transport is responsible for about 13 percent of GHG emissions<sup>4</sup> and 22 percent of the

---

<sup>1</sup> WHO (2015). Economic cost of the health impact of air pollution in Europe

<sup>2</sup> IARC (2013). Outdoor air pollution a leading environmental cause of cancer deaths. Available from [http://www.iarc.fr/en/media-centre/iarcnews/pdf/pr221\\_E.pdf](http://www.iarc.fr/en/media-centre/iarcnews/pdf/pr221_E.pdf)

<sup>3</sup> EEA (2014), Focusing on environmental pressures from long-distance transport. TERM 2014: transport indicators tracking progress towards environmental targets in Europe, EEA Report No 7/2014, European Environment Agency.

<sup>4</sup> IPCC (2007), Transport and its infrastructure in Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter5.pdf>

total CO<sub>2</sub> emissions from fuel combustion.<sup>5</sup> In addition, the power generation and on-road transportation are estimated to be the largest contributors to a global warming.<sup>6</sup>

5. *Noise pollution and its health effects.* Emissions of noise, including from transport, impact the quality of life in urban areas, but also are increasingly seen as a health hazard. Noise is defined as an “unwanted or disturbing sound”. Sound becomes unwanted when it either interferes with normal activities such as sleeping or conversation, or disrupts or diminishes one’s quality of life. As one cannot see, taste or smell it, noise tends to receive less attention from policymakers than other types of pollution. Excessive noise seriously harms human health and interferes with people’s daily activities at school, at work, at home and during leisure time. It can disturb sleep, lead to cardiovascular and psychophysiological effects, reduce performance and provoke annoyance responses and changes in social behaviour. One in five Europeans is regularly exposed to sound levels at night that could significantly damage health.<sup>7</sup> In addition, new evidence has emerged indicating that at least 1 million healthy life years are lost every year in Europe as a result of noise from road traffic alone.<sup>8</sup> The social costs of traffic noise in 22 States of the EU<sup>9</sup> are over €40 billion per year, and passenger cars and lorries (trucks) are responsible for the bulk of costs.<sup>10</sup>

## **B. Making the link: transport policy and emissions reduction**

### **1. The policy response**

6. UNECE, the Inland Transport Committee (ITC) and the World Forum for Harmonization of Vehicle Regulations (WP.29), its subsidiary body, have done extensive work on technologies reducing the harmful effects of diesel internal combustion engines, primarily on the reduction of particulate matter expressed both in terms of particulate mass and particle number. The evolution of regulatory instruments on emissions of local pollutants led to limit values for PM emissions of light vehicles that are today more than 30 times lower than 2 decades ago. The emission limits for gaseous pollutants have been drastically reduced in the last decades by more than 95 per cent compared to the limit values established in 1970. Significant developments in engine technology and after treatment devices have allowed a steady strengthening of emission standards over time. The Euro VI (heavy-duty) limits for PM are 95 per cent more stringent than those of Euro I (ICCT 2011).

---

<sup>5</sup> Transport and its infrastructure in Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter5.pdf>

<sup>6</sup> Unger, N., *et al*, Climate forcing by the on-road transportation and power generation sectors. *Atmos. Environ.*, 43, 3077-3085, doi:10.1016/j.atmosenv.2009.03.021.

<sup>7</sup> WHO/EURO, “Noise”, 2012. Available from <http://www.euro.who.int/en/what-we-do/healthtopics/environment-and-health/noise>.

<sup>8</sup> WHO/EURO, Burden of disease from environmental noise: Quantification of healthy life years lost in Europe (Copenhagen, 2011). Available from <http://www.euro.who.int/en/what-we-publish/abstracts/burden-of-disease-from-environmental-noise.-quantification-of-healthy-life-yearslost-in-europe>.

<sup>9</sup> All the current member States of the EU except Croatia, Cyprus, Estonia, Latvia, Lithuania and Malta.

<sup>10</sup> Eelco den Boer and Arno Schrotten, “Traffic noise reduction in Europe: Health effects, social costs and technical and policy options to reduce road and rail traffic noise” (Delft, the Netherlands, CE Delft, March 2007). Available from [http://www.cedelft.eu/publicatie/traffic\\_noise\\_reduction\\_in\\_europe/821?PHPSESSID=ad8353cb75ccfdf097561c2fc46a6f6a](http://www.cedelft.eu/publicatie/traffic_noise_reduction_in_europe/821?PHPSESSID=ad8353cb75ccfdf097561c2fc46a6f6a).

7. The World Health Assembly of the WHO in May 2015 adopted a resolution on the health impacts of air pollution, the world's largest single environmental health risk.<sup>11</sup> The resolution highlights the key role national health authorities need to play in raising awareness about the potential to save lives and reduce health costs, if air pollution is addressed effectively. It also stresses the need for strong cooperation between different sectors and integration of health concerns into all national, regional and local air pollution-related policies. It urges Member States to develop air quality monitoring systems and health registries to improve surveillance for all illnesses related to air pollution; promote clean cooking, heating and lighting technologies and fuels; and strengthen international transfer of expertise, technologies and scientific data in the field of air pollution.

8. Despite these improvements, in 2012, the European Environment Agency (EEA) noted that eleven member States had not reduced their air pollutant emissions as set in the National Emission Ceilings Directive (2001/81/EC). The Directive contains national emission limits that are either equal to or slightly more ambitious than those in the Gothenburg Protocol to the UNECE Convention on Long-range Transboundary Air Convention (Air Convention). The EU ceiling for nitrogen oxides (NO<sub>x</sub>) in the Directive is exceeded in EU member States due to the transport sector's growth, underestimation of emissions from vehicles and slower than expected replacement of old vehicles. However, worldwide, the move to cleaner vehicles has started and the EU and the United States of America are already using vehicles with Euro VI / EPA 10 technology.

9. The EU Directive on the Promotion of Clean and Energy Efficient Road Transport Vehicles aims at a broad market introduction of environmentally-friendly vehicles. It requires that energy and environmental impacts linked to the operation of vehicles over their whole lifetime are taken into account in all purchases of road transport vehicles, as covered by the public procurement Directives and the public service Regulation. The Directive requires that energy and environmental impacts linked to the operation of vehicles over their whole lifetime are taken into account in purchase decisions. These lifetime impacts of vehicles shall include at least energy consumption, CO<sub>2</sub> emissions and emissions of the regulated pollutants of NO<sub>x</sub>, NMHC and particulate matter.<sup>12</sup>

10. Market fuel quality may influence vehicle emissions particularly when fuel characteristics are not aligned with engine technology. Certain characteristics of the fuel may affect the durability and proper functioning of the vehicle emissions control equipment. Recommended limit values of specific fuel parameters such as sulphur, lead and ash were developed by the Working Group on Pollution and Energy (GRPE) and introduced in the Consolidated Resolution on the Construction of vehicles (R.E.3).

11. The transport sector shows progress towards the goal of achieving a 10% share of renewable energy by 2020 in each EU member State. The average EU-28 share of renewable energy in transport increased from 3.4% in 2011 to 5.1% in 2012. The use of renewable electricity in road transport has also increased, but remains marginal compared to the amount of biofuels consumed. Pure electric vehicles currently comprise

---

<sup>11</sup> WHO (2015). Health and the Environment: Addressing the health impact of air pollution. Available from [http://apps.who.int/gb/ebwha/pdf\\_files/WHA68/A68\\_ACONF2Rev1-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_ACONF2Rev1-en.pdf)

<sup>12</sup> Directive 2009/33/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of clean and energy-efficient road transport vehicles: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0033>

only 0.04% of the total fleet and the latest data show that their share in EU-27 new car registrations is only 0.22%.

## **2. Intersectoral cooperation**

11. The UNECE Environment and Sustainable Transport Divisions and the World Health Organization Regional Office for Europe (WHO-Europe) jointly implement the Transport, Health and Environment Pan-European Programme (THE PEP) which addresses the existing linkages between the three different sectors thereby offering a platform for countries to share experiences and lessons learned. Through the Amsterdam and Paris Declarations, member States have committed themselves to build capacity for the integration of transport, health and environmental policies to, inter alia, reduce emissions of transport-related greenhouse gases, air pollutants and noise. THE PEP's vision is for green and healthy transport and mobility that includes sustainable urban livelihoods for all.

12. Priority Goal 3 of the Paris Declaration makes reference to proposed policy actions to achieve the goal of reduced emissions from transport-related GHGs, air pollutants and noise, namely:

- (a) Supporting a shift in the vehicle fleet towards zero- or low-emission vehicles and fuels based on renewable energy;
- (b) Promoting a shift towards clean transport modes;
- (c) Fostering electric mobility as well as eco-driving.

13. THE PEP has developed and/or applied tools and methods to promote sustainable transport. For example, the WHO-developed health economic assessment tools for walking and cycling and the step-by-step manual Developing national action plans on transport, health and environment promote active mobility and highlight the economic benefits of derived health improvements. The UNECE Sustainable Transport Division-developed the For Future Inland Transport Systems (ForFITS) tool evaluates transport activity, energy use, and CO<sub>2</sub> emissions in a range of possible policy contexts. Furthermore, in the next years THE PEP will focus on strengthening capacities through the newly established THE PEP Academy, developing a pan-European Master Plan on Cycling under the new partnership on cycling promotion, and continuing the study of job-creation in green and healthy transport, i.e. in public transport, cycling and walking.

## **II. Organization of THE PEP 2015 Symposium**

### **A. Proposed content of Symposium**

14. The Symposium is to be organized before the Eighth Environment for Europe Ministerial Conference, being held in Batumi (Georgia) on 8–10 June 2016. One of the two themes of that Conference is “Improving air quality for a better environment and human health”. The Symposium will be used to discuss in depth how the reduction of emissions of transport-related greenhouse gases and air pollutants can lead to a better environment and human health, reflecting the priority goal 3. The outcomes of the Symposium can then be reported to THE PEP Steering Committee, possibly to COP-21 and later to the Batumi Conference, among other forums. Issues that could be addressed at THE PEP 2015 Symposium by the presenters and during the interactive discussion may include the following:

- (a) What are the trends in the UNECE/WHO/EURO region in emission of air pollutants, GHGs and noise for the transport sector, especially road transport? Which air pollutants from transport cause risks to the environment and health and how the risks are assessed (e.g. emission inventories, pollutants registers, air quality monitoring)? Which aspects of air pollution from transport is the most important to manage in the near future and in the longer term?
- (b) What are the existing regulatory frameworks in the UNECE/WHO/EURO region governing noise and air pollution? How effective are current policies (environmentally-friendly vehicles, renewable energy in transport) in addressing the impact of air pollution from transport? What can be done to make such policies more effective? What are the financial incentives and how effective they are?
- (c) Are the prevailing problems with air pollution from transport generally known? How can communication be improved? Which channels, messages and means work best?
- (d) What are the priorities for THE PEP in contributing to the reduction of emissions of transport-related GHGs, air pollutants and noise?

## **B. Proposed format of the Symposium**

15. The Symposium will be part of the thirteenth session of THE PEP Steering Committee (Geneva, 17–18 November 2015). It will take place at the Palais des Nations on 17 November 2014 from 3 to 6 p.m., with interpretation (English, French and Russian), opening with a keynote address, followed by a panel discussion, beginning with brief statements from five to six panellists, and a moderated discussion.

16. The secretariat will summarize the discussions for the Steering Committee on the following day, 18 November, under item 1 of the provisional agenda. The Committee will be invited to review the results of the Symposium and to consider possible follow-up actions in the context of THE PEP and its future work programme. A detailed programme of THE PEP 2015 Symposium, including speaker and panellists, will be available in October 2015.

---