

Annex: Context and description of work

Despite increasing awareness of the health impacts of air pollution over decades and various policy initiatives at international, European, national and regional / city levels, air pollution remains the largest environmental health risk in Europe. The disease burden and the costs imposed on national health systems across Europe are unacceptable: according to the European Environment Agency, health impacts attributable to exposure to air pollution indicate that PM_{2.5} concentrations were responsible for about 428 000 premature deaths originating from long-term exposure in Europe (41 countries), of which around 399,000 deaths in the EU28 (2014). The estimated impact of exposure to NO₂ and O₃ concentrations in 2014 is around 75,000 and 13,600 premature deaths per year respectively in the EU28.¹ Heart disease and stroke are the most common reasons for premature death attributable to air pollution and are responsible for 80% of cases; followed by lung diseases and lung cancer.²

Premature mortality is however, just the tip of the iceberg: the costs to health systems and economies of patients living with chronic diseases caused by air pollution are much higher. Air pollution increases the incidence of many chronic diseases, which are increasingly burdening Europe's health systems, especially respiratory and cardiovascular diseases and cancer. Air pollution is particularly harmful to children, even during gestation. Impacts on cognitive development as well as respiratory and cardiovascular health and allergies often have lifelong consequences for health, quality of life and productivity.³

Recent studies by the WHO and (EPA member organization) the Royal College of Physicians, show emerging evidence that exposure to air pollution is associated with new-onset type 2 diabetes in adults, and it may be linked to obesity, systemic inflammation, ageing, Alzheimer's disease and dementia.⁴ ⁵ In short, air pollution is a factor in all major chronic disease groups – and therefore cost burdens on today's health systems. These diseases and costs are to a large extent preventable.

The OECD projects that the market costs of air pollution (reduced productivity, additional health expenditure, crop losses, etc.) will increase to 2% of European GDP by 2060. However, this is estimated to be equivalent to just one tenth of the *non-market* costs, including those of illness, ecosystem damage and climate change.⁶

Diesel emissions, particularly from road transport, are a major contributor to the health burden and cost of air pollution.⁷ More than 40% of nitrous oxides (NO_x) come from road transport, of

¹ EEA (2017) Air quality in Europe 2017, EEA Report No 13/2017: <https://www.eea.europa.eu/publications/air-quality-in-europe-2017>

² WHO (2014), Burden of disease from ambient air pollution for 2012 – Summary of Results.

³ EEA (2017) *ibid*

⁴ WHO (2016) WHO expert consultations: Available evidence for the future update of the WHO Global Air Quality Guidelines

⁵ RCP (2016) Every breath we take: the lifelong impact of air pollution, Working Party Report, Royal College of Physicians, London, UK

⁶ OECD (2016), The economic consequences of outdoor air pollution, OECD publishing, Paris.

⁷ Thurston, G and Newman, J.D., The Lancet, Walking to a pathway for cardiovascular effects of air pollution, Volume 391, No. 10118, p339–349, 27 January 2018



which around half from diesel vehicles.⁸ Road transport is the second largest source of black carbon (EEA, 2017). In addition, around 40% of particulate matter also comes from the transport sector.⁹ The International Agency for Research on Cancer (IARC) of the World Health Organisation (WHO) has classified diesel exhaust as a Group 1 carcinogen, as well as particulate matter as carcinogenic in its own right.¹⁰

The excess emissions due to ‘Dieselgate’ non-compliance with emissions standards internationally (especially from heavy vehicles) totalling 4.6 million tons have been associated with about 38,000 premature deaths (PM2.5- and ozone-related) globally in 2015, including about 10% of all ozone-related premature deaths in the EU-28.¹¹ A study by IIASA found that roughly 10,000 premature deaths a year (EU28 plus Norway and Switzerland) can be attributed to NOx emissions from diesel cars, vans, and light commercial vehicles, of which approximately half are due to the excessive NOx emissions.¹² Most health impact studies compare real world emissions concentrations to either regulatory standards or to equivalent petrol vehicles. But what would be the health benefit of ‘dumping diesel’ altogether and moving to decarbonized transport? How much would this save European health systems?

A new study featured in *The Lancet* (January 2018) shows that diesel exhaust fumes from road traffic have immediate cardiovascular and respiratory impacts, as well as causing chronic diseases and long-term health damage.¹³ This is particularly important as it shows that the beneficial health effects of healthcare treatment and medication, or preventative activities such as moderate exercise, are immediately negated by even brief exposure to diesel emissions. This has serious implications for health services and budgets: action must be taken to curb diesel pollution to ensure that healthcare treatment is money well spent and that the benefits are sustainable. This immediacy of action and benefits has not yet featured in the debate around decarbonisation / electrification of transport.

Overall project outline, including the role of the consultant

- Pillar 1 EPHA is in the process of commissioning a health impact assessment study via a research consultant illustrating the benefits of dumping diesel and switching to an electrification strategy for road transport across the EU and for several key countries, focusing on economic benefits and particularly national healthcare cost savings;
- Pillar 2 Galvanise national-level debate around the future of diesel /transport via coordinated research and activities with health NGOs active in ca. key EU Member States including national events, publications, press work and launch of the study;
- **Pillar 3 (ADVOCACY CONSULTANCY): pro-health (disease prevention) messaging at the European level, launching the study, collecting an overview of national positions**

⁸ Anenberg, S. et al, Nature, letter: Impacts and mitigation of excess diesel-related NOx emissions in 11 major vehicle markets, Nature volume 545, pages 467–471 (25 May 2017) doi:10.1038/nature22086

⁹ EEA, Air pollution sources : <https://www.eea.europa.eu/themes/air/air-pollution-sources>

¹⁰ IARC (2012), IARC: Diesel engine exhaust carcinogenic www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213_E.pdf

¹¹ Anenberg, S et al, in Nature, ibid.

¹² IIASA (2017), Impact of excess NOx emissions from diesel cars on air quality, public health and eutrophication in Europe, <http://pure.iiasa.ac.at/14823/>

¹³ Sinharay, R. et al, The Lancet, Respiratory and cardiovascular responses to walking down a traffic-polluted road compared with walking in a traffic-free area in participants aged 60 years and older with chronic lung or heart disease and age-matched healthy controls: a randomized, crossover study: Volume 391, No. 10118, p339–349, 27 January 2018: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(17\)32643-0/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)32643-0/fulltext)



- in coordination with national partners ahead of crucial EU policy decisions, supported by an EU policy event in Brussels. Targeting member states (Environment/Financial/Transport/Health administration) would be key, including briefing for attachés

Planning calendar – Milestones and Deliverables

Month	Action / Output	Responsible	Involved
August 2018	Consultant selection, contracts Project kick-off	EPHA	National partners Advocacy consultant
weekly/ Bi- Monthly	Tele/videoconferences/physical meetings; updates and strategic planning	Advocacy Consultant	EPHA National partners
Sept 2018	Advocacy Strategy + Communication strategy	Advocacy Consultant	EPHA
Sept 2018	EU policy event, Brussels, Plus meetings European Commission, Health, Env, Industry attaches, European Parliament	Advocacy Consultant	EPHA National Partners, Research consultants; Advocacy consultant, National partners
Oct 2018	Media launch final report, including national and EU briefings (local languages + EN)	Advocacy Consultant,	EPHA, National Partners, Research consultants
Oct 2018	Interim report deadline	Advocacy Consultant	EPHA
Oct/Nov 2018	Messaging to national administrations, Briefing for Attachés (Finance/Transport/Environment/Health))	Advocacy Consultant	EPHA
Jan 2019	Final Report Deadline	Advocacy Consultant	EPHA