

Better Health. Better Environment. Sustainable Choices.

Fact sheet 10

Air Pollution

Better air for better health

Summary

Over the last few years, ambient and household air pollution has gained increased relevance on the global health agenda. It is now the biggest environmental risk to health, responsible for the premature deaths of 6.5 million people every year globally and about 600 000 in the WHO European Region. Therefore, improving air quality can deliver substantial health benefits; reducing air pollution levels means reducing premature deaths and diseases from stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases, including asthma.



Introduction

Air pollution is responsible for a significant burden on health, environment, national economies and well-being in Europe. Small particulate matter of 10 or 2.5 microns in aerodynamic diameter (PM10 and PM2.5) or less is the most harmful air pollutant. The economic cost of deaths and diseases from air pollution in the WHO European Region amounts to US\$ 1.6 trillion, according to a study by the WHO Regional Office for Europe and the Organization for Economic Cooperation and Development in 2015. This figure is the equivalent of one-tenth of the gross domestic product of the European Union in 2013.

Emissions of the main air pollutants in Europe have declined in recent decades, resulting in generally improved air quality across the region. However, a large proportion of the European population remains exposed to air pollution that exceeds WHO Air Quality Guidelines (AQGs). For example, PM2.5 levels exceeded the WHO AQGs in about 74% of stations in monitored countries of the WHO European Region in 2014.

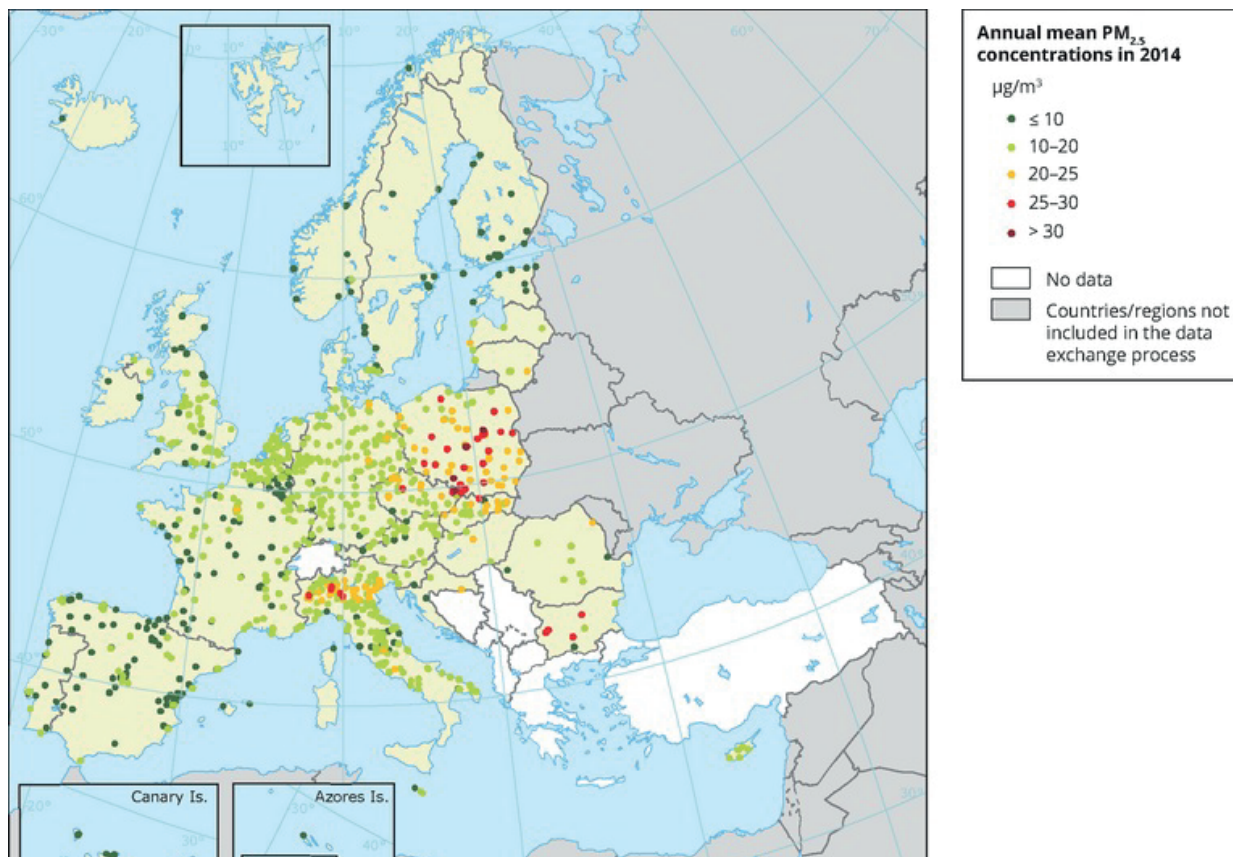


Key messages

- ▶ Deaths from ambient air pollution occur in all European countries, regardless of their income level. However, air pollution disproportionately affects the least affluent parts of the region and the most vulnerable populations, with dramatic societal and economic impacts. Moreover, the monitoring of air quality is very limited in countries in the eastern part of the region.
- ▶ Adverse effects on health from exposure to polluted indoor air are also substantial. Those from household air pollution related to the combustion of solid fuels for heating and cooking are more than five times greater in low- and middle-income countries than in wealthier ones.
- ▶ In most countries, there is no regular monitoring of air pollutant levels in indoor environments where children spend a significant part of their time, such as in kindergartens and schools. The limited data available underscore the need to develop suitable policies to address indoor air quality in facilities for children.
- ▶ The overall compelling scientific evidence, and the significant burden of disease from air pollution, provide convincing arguments for the need to take further action to reduce emissions and improve air quality. Scaling up and accelerating interventions that reduce air pollution in energy production, transport and other sectors is a way to help meet the sustainable development goals on health (SDG3), energy (SDG7) and cities (SDG11), as well as contribute to climate change mitigation.

Figure 1: Concentration of PM_{2.5} in 2014

The dark green dots indicate stations reporting values below the WHO guideline level for PM_{2.5} (10 µg/m³).



Source: Air quality in Europe – 2016 report. Copenhagen: European Environment Agency; 2016 (<http://www.eea.europa.eu/publications/air-quality-in-europe-2016>, accessed 10 March 2017).



Key facts

- ▶ Air pollution is the single largest environmental health risk in Europe. Every year, ambient (outdoor) air pollution causes nearly 500 000 premature deaths; household (indoor) air pollution from solid fuel combustion for heating and cooking is responsible for nearly 120 000 premature deaths.
- ▶ Nearly 290 000 deaths were attributable to ambient air pollution in high-income countries, and 190 000 deaths in middle- and low- income countries, in the WHO European Region in 2012.
- ▶ Worldwide, ischemic heart disease and stroke are the most common causes of premature death attributable to ambient (outdoor) air pollution (72%); chronic obstructive pulmonary disease and lung cancer are next, based on data from 2012.
- ▶ The International Agency for Research on Cancer has classified air pollution in general, as well as particulate matter (PM) as a separate component of air pollution mixtures, as carcinogenic.
- ▶ In European cities that monitor air pollution (over 1790 cities in 42 countries), annual urban levels of PM10 generally exceed the WHO guidelines value. The average annual level in cities in European high-income countries was 25 $\mu\text{g}/\text{m}^3$, whereas it was 55 $\mu\text{g}/\text{m}^3$ in cities in European middle and low-income countries.



Source: UN gallery



Source: WHO/D. Jarosinska

“Best buys”

- ▶ To be effective, the implementation of air quality policies needs coherence at global, European, national and local levels and across most economic sectors, and the engagement of stakeholders.
- ▶ The UNECE Convention on Long-range Transboundary Air Pollution has been a key legally binding instrument since 1979 – its ratification and implementation need to be promoted across the WHO European Region. Fifty-one UNECE Member States are Parties to the Convention. Over the years, Parties have adopted eight pollutant-specific protocols. The recent amendments to the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol), the Protocol on Heavy Metals, and the Protocol on Persistent Organic Pollutants need to be ratified and implemented to bring about further improvements in air quality and health across the region.
- ▶ Initiatives such as the Batumi Action for Cleaner Air, adopted at the Eighth Environment for Europe Ministerial Conference, create a framework for Member States to voluntarily commit to ambitious actions to combat air pollution, in the areas of monitoring, national action programmes, public awareness, capacity building, and policy-making.
- ▶ A resolution on the health impact of air pollution, adopted at the 68th World Health Assembly in May 2015, defined the role of the health sector and the roles of Member States and WHO in strengthening efforts to protect populations from the health risks of air pollution. A road map for an enhanced global response to air pollution by the health sector provides a framework to guide actions by Member States, WHO and stakeholders.



- ▶ Since 1987, the WHO AQGs have been providing public health recommendations to assist policy-makers, health-care providers, and other stakeholders to make informed decisions. The development and regular update of national and/or regional legislation in concordance with the AQGs is encouraged to protect public health from the adverse effects of air pollution.
- ▶ Effective action to reduce air pollution requires a good understanding of the causes, transport and transformation processes of pollutants in the atmosphere, and how air pollution can affect humans, ecosystems, climate, and subsequently, society and the economy.
- ▶ The monitoring of air quality and collection of data on both ambient and indoor air quality is very important, especially to bridge the gap between high-income and middle- and low-income countries. Furthermore, new developments, such as modeling and satellite data, need to be incorporated to generate information about air quality and to wisely reduce the monitoring gap.
- ▶ Quantifying the health risks of air pollution by using appropriate methods and tools, such as AirQ+ – a software tool developed by the WHO Regional Office for Europe – can support informed decision-making and the monitoring of progress towards better protecting human health through improved air quality. Critically important is the availability of reliable data as well as adequate capacities in Member States to conduct such assessments.
- ▶ While the health sector and public health interventions play very important roles, they need to be complemented by policy and technology interventions that address the ways of producing and consuming energy, goods and services, in order to progress towards more sustainable solutions.
- ▶ Reducing outdoor air pollution is also linked to reducing emissions of CO₂ and short-lived climate pollutants, such as black carbon particles and methane, thus contributing to the near- and long-term mitigation of climate change.

Key references

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