

## Mortality due to air pollution

Air pollution and climate change caused by greenhouse gas emission from human activities pose a serious threat to people's health and to future generations. Air pollution increases the risk of various health problems including respiratory diseases, lung cancer, cardiovascular diseases, and leukaemia, with children and older people being particularly vulnerable.

In EU countries, exposure to fine particulate matter (PM<sub>2.5</sub>) – a key air pollutant – is estimated to have caused the death of 307 000 people in 2019 (EEA, 2021<sup>[1]</sup>). Mortality rates from PM<sub>2.5</sub> were highest in Central and Eastern Europe (e.g. Poland, Hungary, Romania, Bulgaria as well as Albania, Serbia and North Macedonia) with premature death rates at least 50% higher than the EU average. Conversely, rates were lowest in Ireland, Finland, Sweden as well as Norway and Iceland, with rates less than half the EU average (Figure 4.22).

While the mortality burden of air pollution remains very high in many countries, reduced emissions of PM<sub>2.5</sub> and other key pollutants from transport and energy supply have led to improvements in air quality in Europe and fewer deaths from air pollution (EEA, 2021<sup>[1]</sup>). Premature death rates due to PM<sub>2.5</sub> decreased by over 20% between 2009 and 2019 on average in EU countries. Premature deaths rates decreased in virtually all countries, but to various extent. Luxembourg, Belgium, France, as well as Switzerland, Norway and Iceland recorded the largest reductions (Figure 4.23).

Cross-sectoral policy actions to limit greenhouse gas emissions are essential to limit the detrimental impacts on human health and the environment. As part of the European Green Deal, the Zero Pollution Action Plan, adopted by the European Commission in 2021, aims to reduce the number of premature deaths caused by PM<sub>2.5</sub> by at least 55% by 2030 compared with 2005 (European Commission, 2021<sup>[2]</sup>). To achieve this goal, the EU is revising the air quality standards to align them more closely with the stricter WHO recommendations. In parallel, the Commission will also introduce stricter requirements to tackle air pollution at source from different sectors, such as agriculture, industry, transport, buildings and energy, including through a number of European Green Deal measures and strategies (such as Sustainable and Smart Mobility, Renovation Wave, and Farm to Fork).

### Definition and comparability

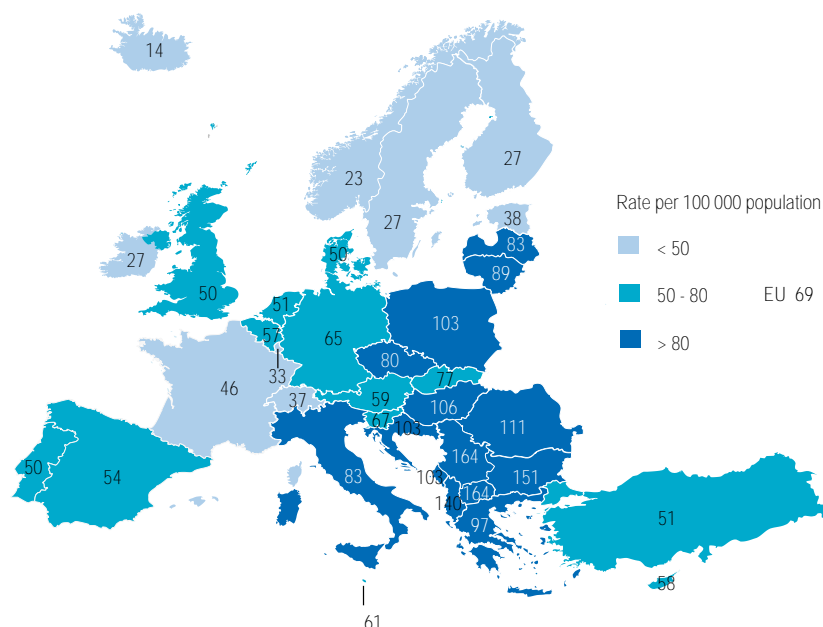
Fine particulate matter (PM) is a mixture of fine solid or liquid particles (e.g. dust, smoke, soot, pollen and soil particles) added into the air mostly by activities using fuel combustion. PM<sub>2.5</sub> refers to suspended particulates less than 2.5 micrometres in diameter that are capable of penetrating deep into the respiratory tract. It is linked with illnesses and deaths from heart, lung, neurological or metabolic systems.

The data on premature deaths due to PM<sub>2.5</sub> are based on estimates from the European Environment Agency (EEA, 2021<sup>[1]</sup>; González Ortiz et al., 2021<sup>[3]</sup>). Premature death is defined as death occurring before a person reaches the life expectancy for a country, stratified by sex. The data relate only to outdoor air pollution, which accounts for a much larger proportion of deaths than indoor air pollution in all EU countries.

### References

- EEA (2021), "Health impacts of air pollution in Europe, 2021", <https://www.eea.europa.eu/publications/health-risks-of-air-pollution/health-impacts-of-air-pollution>. [1]
- EEA (2020), *Air quality in Europe - 2020 report*, <https://www.eea.europa.eu/publications/air-quality-in-europe-2020-report>. [4]
- European Commission (2021), *Zero pollution action plan*, [https://environment.ec.europa.eu/strategy/zero-pollution-action-plan\\_en](https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en). [2]
- González Ortiz, A. et al. (2021), *Health risk assessments of air pollution. Estimations of the 2019 HRA, benefit analysis of reaching specific air quality standards and more*, European Topic Centre on Air pollution, transport, noise and industrial pollution. [3]

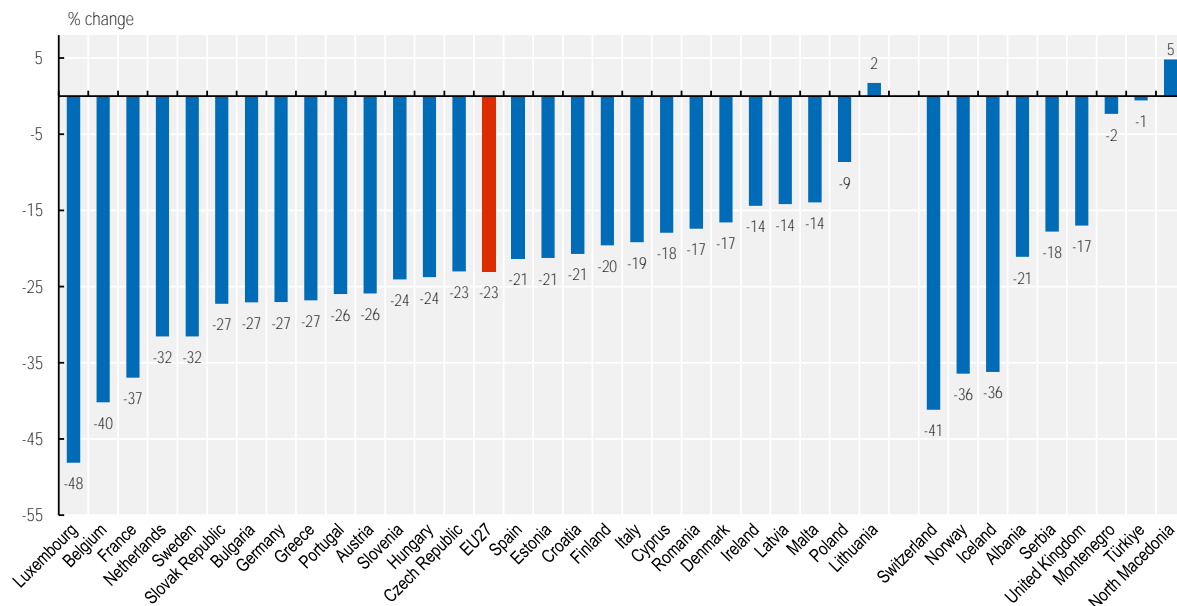
Figure 4.22. Premature deaths due to air pollution PM2.5, 2019



Note: The data for Montenegro relates to 2018.

Source: González Ortiz et al. (2021[39]), "Health risk assessments of air pollution. Estimations of the 2019 HRA, benefit analysis of reaching specific air quality standards and more", <https://www.eionet.europa.eu/etcs/etc-atn/products/etc-atn-reports/etc-atn-report-10-2021-health-risk-assessments-of-air-pollution-estimations-of-the-2019-hra-benefit-analysis-of-reaching-specific-air-quality-standards-and-more>, complemented with data from IHME for Türkiye.

Figure 4.23. Change in premature deaths due to air pollution (PM<sub>2.5</sub>) from 2009-19



Note: The latest data for Montenegro relates to 2018.

Source: González Ortiz et al. (2021<sup>[33]</sup>), "Health risk assessments of air pollution. Estimations of the 2019 HRA, benefit analysis of reaching specific air quality standards and more", <https://www.eionet.europa.eu/etcs/etc-atni/products/etc-atni-reports/etc-atni-report-10-2021-health-risk-assessments-of-air-pollution-estimations-of-the-2019-hra-benefit-analysis-of-reaching-specific-air-quality-standards-and-more>, and EEA (2020<sup>[34]</sup>), "Air quality in Europe - 2020 report", <https://www.eea.europa.eu/publications/air-quality-in-europe-2020-report>, complemented with data from IHME for Türkiye.

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