

Air pollution at the national and local level is an important determinant of the individual well-being in regions and cities in particular due to its negative impact on health and the economy.

Fine particulate matters (PM<sub>2.5</sub>) are generally emitted from the combustion of liquid and solid fuels for industrial and housing energy production, vehicles and biomass burning in agriculture. The exposure to air pollution in regions and cities is greatly associated with the industry located in the territory, its level of urbanisation and the transportation system developed in the territory.

In 2014, in 52% of the OECD regions people were on average exposed to levels of air pollution higher than those recommended by the World Health Organisation (pollution concentration level of 10 µg/m<sup>3</sup>). In the regions of Lombardy (Italy) and the Capital Region (Korea) pollution levels were above 25 µg/m<sup>3</sup> of PM<sub>2.5</sub> per person, the highest levels among OECD regions (Figure 1.21). People in all regions in Canada, Sweden, Portugal, Finland, Norway, Austria, New Zealand, Iceland, Ireland and Estonia were exposed to low levels of air pollution (below 10 µg/m<sup>3</sup>).

Air pollution levels varied greatly from region to region. The largest differences are observed in Mexico, Italy and Chile. On the contrary, countries such as New Zealand, Iceland and Ireland present the smallest differences across regions (Figure 1.21).

Air pollution is often an issue in metropolitan areas. In 2014, 53% of the urban population was exposed to levels of air pollution higher than 10 µg/m<sup>3</sup>. In the Netherlands, Poland, Germany, Belgium, Slovenia, Austria, Czech Republic, Hungary, Korea and the Slovak Republic more than 90% of the urban population was exposed to high pollution concentration levels. On the other hand, all urban population in countries such as Australia, Estonia, Ireland and Norway are exposed to pollution levels well within the recommended safe levels (Figure 1.22).

### Definition

Particulate matter (PM), refers to a complex mixture of sulphates, nitrates, ammonia, sodium chloride, carbon, mineral dust and water suspended in the air. Particles can be classified<sup>27</sup> in two categories according to their origin (WHO, 2013). On the one hand, primary PM is emitted from the combustion of liquid and solid fuels for industrial and housing energy production as well as from the erosion of the pavement of the roads. On the other hand, secondary PM are the result of chemical reactions between gaseous pollutants.

Death rates due to diseases of the respiratory system describes mortality rates in relation to the total population due to lung diseases.

Deaths due to diseases associated to respiratory problems are frequent in some regions in southern European countries such as Portugal, Spain and Greece, but also in Poland and Germany (above 100 deaths per 100 000 people). On the other hand, regions in Sweden, Slovenia and Finland accounted for less than 60 deaths per 100 000 people due to respiratory diseases (Figure 1.23).

### Source

Eurostat (2015), Deaths from diseases of the respiratory system, Eurostat Statistics Explained, <http://ec.europa.eu/eurostat/statistics-explained/index.php/>.

OECD (2015), OECD Regional Statistics (database), <http://dx.doi.org/10.1787/region-data-en>.

OECD (2015), "Metropolitan areas", OECD Regional Statistics (database), <http://dx.doi.org/10.1787/data-00531-en>.

See Annex B and C for data sources, methodology and country-related metadata.

### Reference years and territorial level

2014 (three year average 2012-14); TL2.

Functional urban areas (FUAs) have not been identified in Iceland, Israel, New Zealand and Turkey. The FUA of Luxembourg does not appear in the figures since it has a population below 500 000.

### Further information

Brezzi, M. and D. Sanchez-Serra (2014), "Breathing the Same Air? Measuring Air Pollution in Cities and Regions", OECD Regional Development Working Papers, No. 2014/11, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5jxrb7rkxf21-en>.

OECD (2015), Environment at a Glance 2015: OECD Indicators, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264235199-en>.

OECD Regional Well-Being: [www.oecdregionalwellbeing.org](http://www.oecdregionalwellbeing.org).

WHO (2013), Health Effects of Particulate Matter: Policy implications for countries in Eastern Europe, Caucasus and Central Asia, [www.euro.who.int/\\_\\_data/assets/pdf\\_file/0006/189051/Health-effects-of-particulate-matter-final-Eng.pdf](http://www.euro.who.int/__data/assets/pdf_file/0006/189051/Health-effects-of-particulate-matter-final-Eng.pdf).

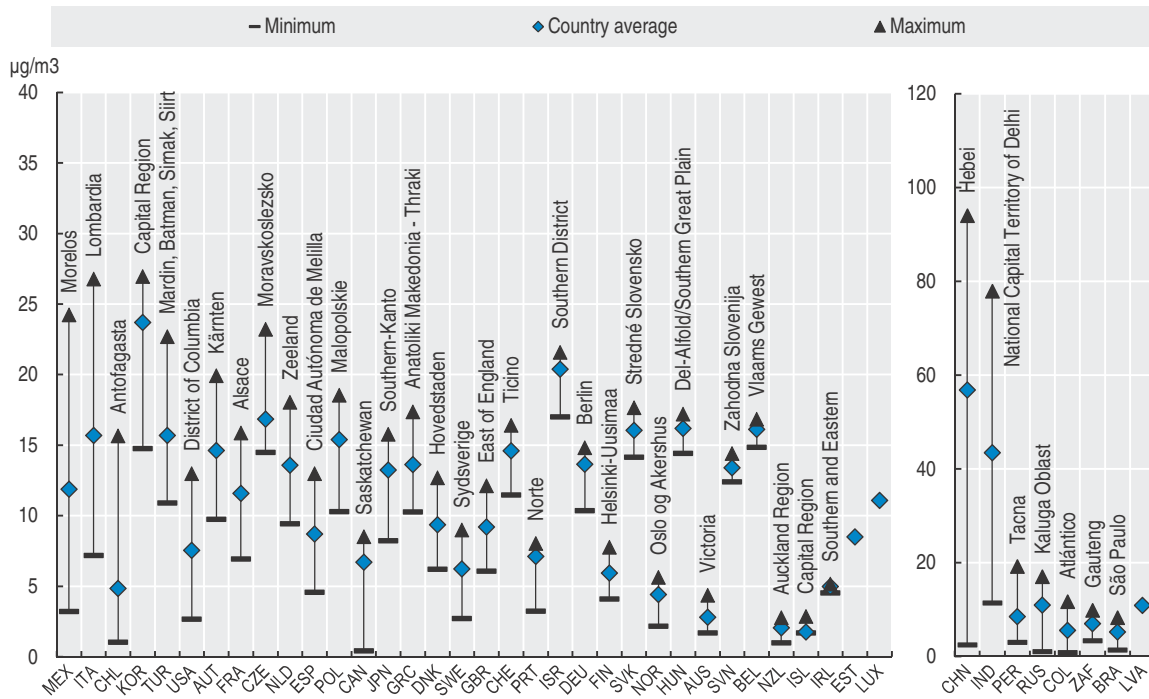
### Figure notes

1.21: Population-weighted exposure to PM<sub>2.5</sub> concentration, micrograms per cubic metre, averaged 2012-14.

1.22: Percentage of the population, mean annual exposure, 2012-14.

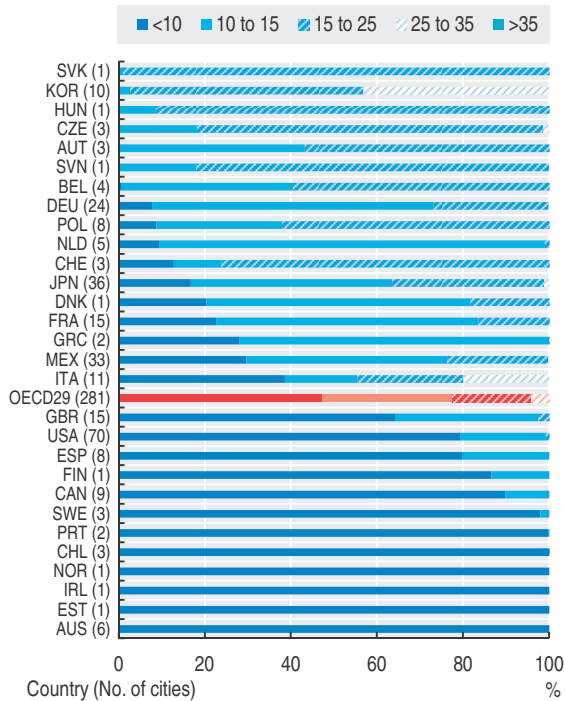
Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

1.21. Regional variation of annual exposure to air pollution, 2014



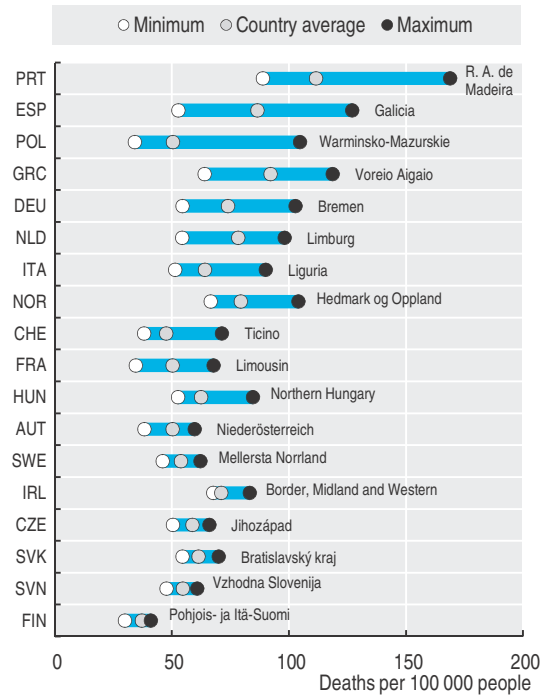
StatLink <http://dx.doi.org/10.1787/888933363059>

1.22. Levels of air pollution for metropolitan populations, 2014

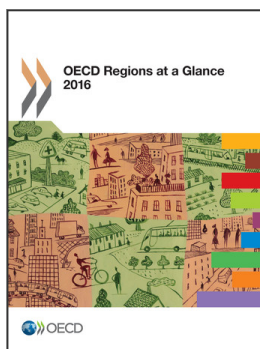


StatLink <http://dx.doi.org/10.1787/888933363062>

1.23. Regional variation in death rate due to diseases of the respiratory system, 2010



StatLink <http://dx.doi.org/10.1787/888933363075>



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