

Air quality in cities

Following improvements in the last decade, air pollution in cities has started to increase again.

The level of air pollution experienced by people in the place where they live is an important feature of their well-being and directly affects their health. Air pollution in cities is often higher than in other areas of a country due to the geographical concentration of people and economic activities, which results in higher emissions from different sources. In the countries of the OECD, air quality can be very different across cities within the same country. For example, average exposure to PM_{2.5} in Santiago (Chile), Mexico City (Mexico) and Windsor (Canada) is more than five times higher than in other cities of the same country. In contrast all cities in Ireland, Norway and Finland have relatively low levels of air pollution (Figure 4.20). In Finland, cities of more than 50 000 inhabitants even have air pollution levels that are less than the national average. Part of the differences observed across cities are driven by characteristics of the cities, including climate, altitude, as well as population density, and the type of economic activity. However, national and local efforts to reduce air pollution, such as policy and regulation in the fields of transport, energy and economic development, play a crucial role in reducing air pollution. Improvements in air quality in a city are fairly likely to benefit all or a large part of its population. It should be acknowledged that seasonal fluctuations in air quality can occur and affect the measure presented in this report.

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 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 is the result of chemical reactions between gaseous pollutants.

PM_{2.5} air pollution data does not differentiate between manmade dust (anthropogenic) and non-anthropogenic dust; however, evidence indicates that dust is as hazardous as anthropogenic sources, and as such there are plausibly relevant policy responses such as warning systems that advise vulnerable people to stay indoors when levels are high.

In the OECD countries of the OECD, only around one-third (31%) of the population lives in cities that respected the World Health Organization's level of PM_{2.5} emissions in 2015 (below 10 µg/m³). Notwithstanding an average decrease of average levels of PM_{2.5} by 18% between 2000 and 2015 (from 17.7 to 14.5 µg/m³) in cities with more than 50 000 inhabitants, air pollution has started to grow again during the last five years (Figure 4.21). This increase was widespread, as observed in cities in 23 out of 29 OECD countries. Air pollution has grown by more than 20% in all Korean and Japanese cities (except Kushiro and Obihiro), and by greater than 40% in 16 of the 45 Korean cities. The highest growth of air pollution (more than 70%) occurred in Funchal (Portugal), although the average air quality, in 2015, in this city remained within WHO recommendations (at 8 µg/m³ PM_{2.5}) (Figure 4.21).

Source

OECD (2018), "Metropolitan areas", *OECD Regional Statistics* (database), <http://dx.doi.org/10.1787/data-00531-en>.

Data collected from OECD (2017) "Exposure to Air Pollution", *OECD Environment Statistics* (database), <https://doi.org/10.1787/96171c76-en>.

Reference years and territorial level

2015, cities (functional urban areas)

Functional urban areas have not been identified in Iceland, Israel, New Zealand and Turkey.

Further information

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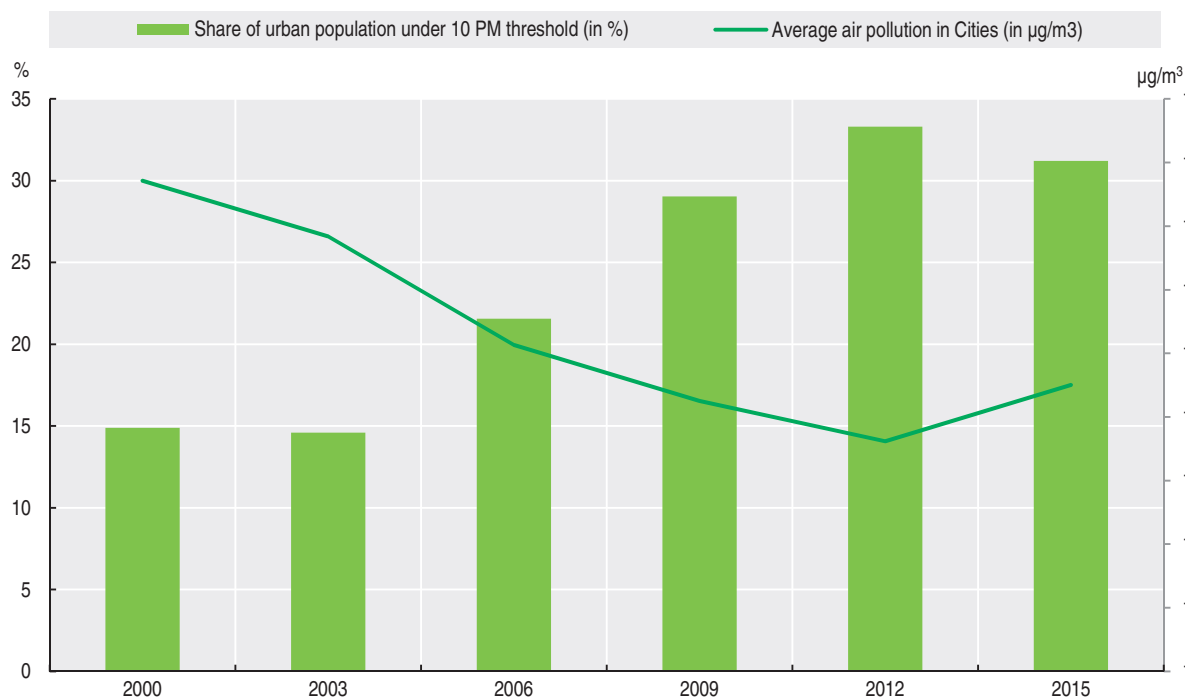
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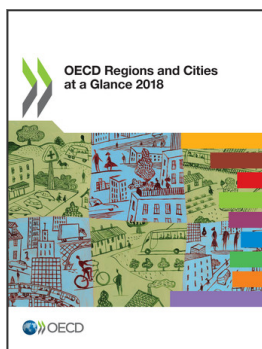
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OECD Regional Well-Being: www.oecdregionalwellbeing.org.

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.

4.20. Urban differences in average exposure to air pollution, 2015

StatLink <http://dx.doi.org/10.1787/888933818264>4.21. % of population exposed to low levels of air pollution and average exposure to PM_{2.5} in citiesStatLink <http://dx.doi.org/10.1787/888933818283>



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