

REGIONAL QUALITY OF AIR

The impact of outdoor air pollution on people's health is sizeable. Fine particulate matters (or PM_{2.5}, 2.5 microns and smaller), a mixture of sulphates, nitrates, ammonia, sodium chloride, carbon, mineral dust and water suspended in the air, can cause respiration and cardiovascular morbidity or mortality from lung cancer, cardiovascular and respiratory diseases.

Definition

Average exposure to air pollution (PM_{2.5}) is estimated at city, regional and national levels using the satellite-based data. The satellite-based data are weighted with data on population distributed at circa 1km² resolution. Subsequently, the exposure to air pollution is calculated by taking the weighted average value of PM_{2.5} for the 1km² grid cells present in each territory (country, region or city), with the weight given by the estimated population count in each cell.

Comparability of regional statistics is affected by differences in the meaning of the word "region". This results in significant differences in terms of geographic

area and population both within and among countries. To address this issue, the OECD has classified regions within each country based on two levels: territorial level 2 (TL2, large regions) and territorial level 3 (TL3, small regions).

Metropolitan areas are defined as the functional urban areas (FUA) with population above 500 000. The functional urban areas are defined as densely populated municipalities (urban cores) and adjacent municipalities with high levels of commuting towards the densely populated urban cores (hinterland). Functional urban areas can extend across administrative boundaries, reflecting the economic geography of where people actually live and work.

Comparability

Air pollution in regions refers here to small regions.

The functional urban areas 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 inhabitants.

Overview

OECD estimates show a wide variation in PM_{2.5} exposure levels across regions within countries, with the largest exposures in Mexico, Italy, Chile and Turkey. In 58% of OECD regions, representing 64% of the total OECD population, the levels of air pollution were higher than World Health Organization recommendations. Critically high values are found in some regions in Korea, Turkey, Mexico, Italy and Israel, among the OECD countries, and China and India. For example, Mexico shows a national average exposure to PM_{2.5} of 11.5 µg/m³, however half of the population live in regions with air pollution levels higher than the national average.

More than one-third of urban population in the OECD area breathes a cleaner air than the rest of the population. At the country level, the share of urban population exposed to lower levels of air pollution than the rest of the country varies from 100% in Estonia to 10% in Spain. In the Czech Republic, Denmark, Finland, Hungary, Ireland, Norway, Slovenia and the Slovak Republic the entire urban population is exposed to pollution levels above the national average.

Cities' characteristics and local efforts to reduce air pollution paint a differentiated geography of urban air quality also within countries. For example, the average exposure to PM_{2.5} in Cuernavaca (Mexico), Milan (Italy) and Kurnamoto (Japan) is three times higher than in other cities of these countries. All cities in Canada, Finland, Chile, Estonia, Norway, Ireland and Australia have relatively low level of air pollution.

Sources

- OECD (2013), *OECD Regions at a Glance*, OECD Publishing.

Further information

Analytical publications

- OECD (2012), *Redefining "Urban": A New Way to Measure Metropolitan Areas*, OECD Publishing.
- Piacentini, M. et K. Rosina (2012), *Measuring the Environmental Performance of Metropolitan Areas with Geographic Information Sources*, OECD Regional Development Working Papers, No. 2012/05, OECD Publishing.

Online databases

- Metropolitan areas.

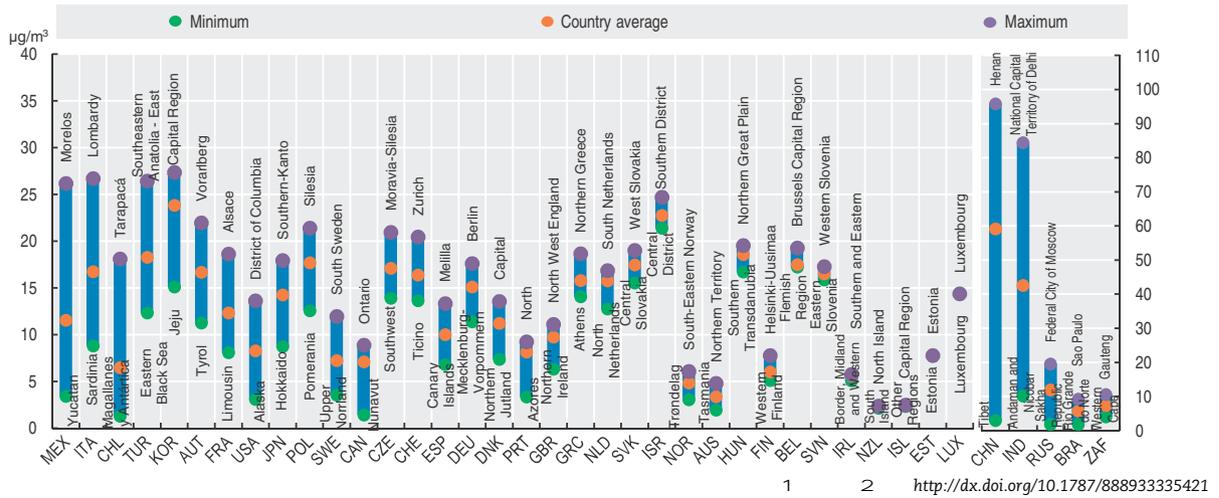
Websites

- Regions at a Glance interactive, <http://rag.oecd.org>.
- Regional statistics and indicators, www.oecd.org/governance/regional-policy/regionalstatisticsandindicators.htm.



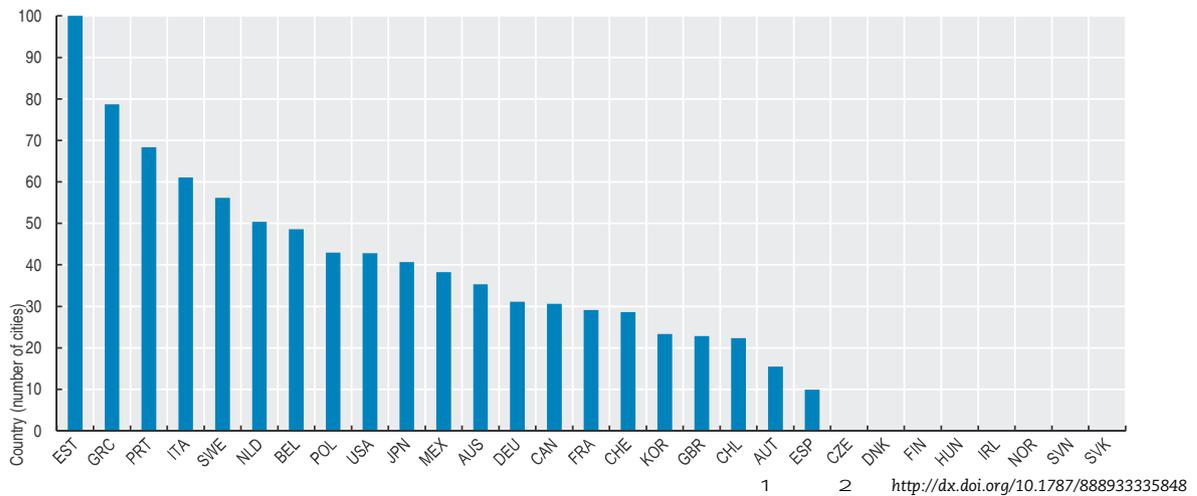
Regional disparities in average exposure to air pollution

Regions with the lowest and highest exposure to PM_{2.5} levels, 2011



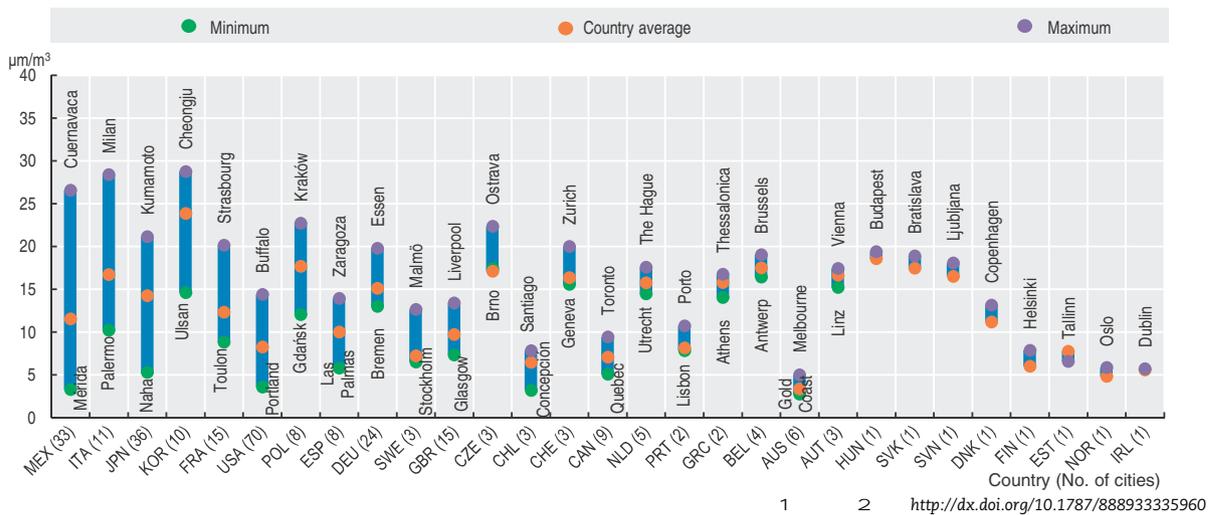
Share of urban population with exposure to PM_{2.5} below the national average

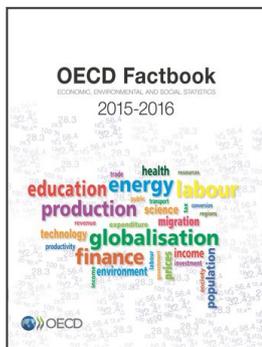
2011



Urban disparities in average exposure to PM_{2.5}

Cities with the lowest and highest exposure to PM_{2.5} levels in each country, 2011





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