ENVIRONMENTAL SUSTAINABILITY IN METROPOLITAN AREAS

Green areas such as parks and natural vegetation contribute to reducing pollution, improving the health and quality of life of residents, and making metropolitan areas more attractive to residents and tourists.

Definition

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.

Carbon dioxide (CO_2) emissions in metropolitan areas are estimated by adjusting national emission data with population grid data and infrastructure location. They include emissions from all sources with the exception of air transport, international aviation and shipping.

CO_2 emissions and green areas in metropolitan areas are estimates based on global satellite datasets.

CO_2 emissions from transport include road and non-road transportation.

Green areas are defined as the land in metropolitan areas covered by vegetation, croplands, forests, shrub lands and grasslands.

Comparability

The functional urban areas have not been identified in Australia, 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

International comparable measures of green areas can be derived by overlapping satellite-based measures of land cover with the metropolitan boundaries.

According to these estimates, North American cities such as Edmonton, Des Moines and Madison are the metropolitan areas with the largest share of green area per person (higher than 5 000 square metres per person). Juares, Bari, Anjo and Athens, on the other hand, recorded the lowest estimates of green areas, i.e. below the minimum level of 9 square metres per person recommended by the World Health Organization.

While metropolitan areas are considered large consumers of energy and producers of carbon dioxide (CO_2), high differences are observable among cities both within and across countries. The metropolitan areas with the highest levels of emissions per capita are found in Canada, Korea and the United States. Within countries, the highest differences in CO_2 emissions per capita in metropolitan areas are observed in Mexico, Italy, Korea and France.

Metropolitan areas can also be more energy efficient than the rest of the country. Evidence shows that the CO_2 emissions per capita in the metropolitan areas are lower than in less densely populated regions in half of the OECD countries, where data are available.

Source of CO_2 emissions depends on many factors, including urban form. For the United States, the high levels of CO_2 from the transport sector are the result of a continuous sprawl of cities and the intensive use of private vehicles to commute. In Canada, high levels of CO_2 emissions per capita in Edmonton are mainly due to coal and oil refineries. On the other hand, in European cities, which account on average for lower levels of CO_2 emissions per capita, the share of CO_2 emissions coming from the energy production sector is relatively larger than the share of emissions coming from the transport sector.

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. and 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

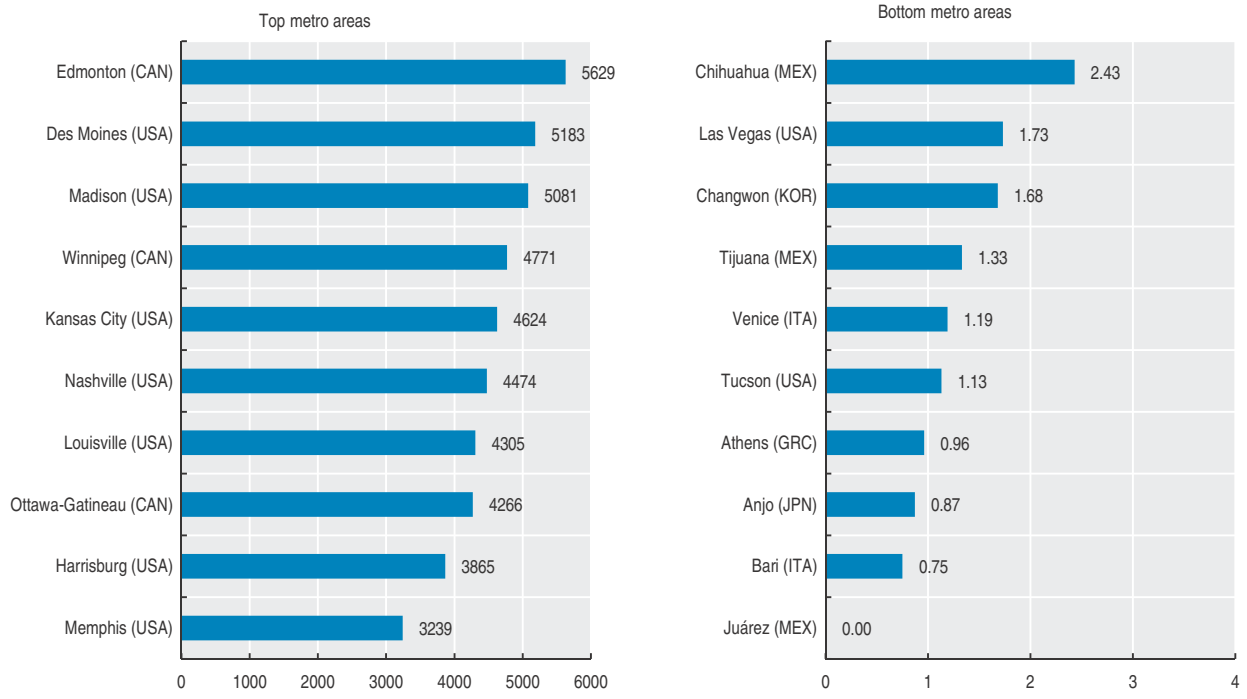
- *OECD Metropolitan Database*.

Websites

- Regions at a Glance interactive, *rag.oecd.org*.
- Regional statistics and indicators, *www.oecd.org/gov/regional/statisticsindicators*.

Top and bottom 10 metropolitan areas by share of green area per person

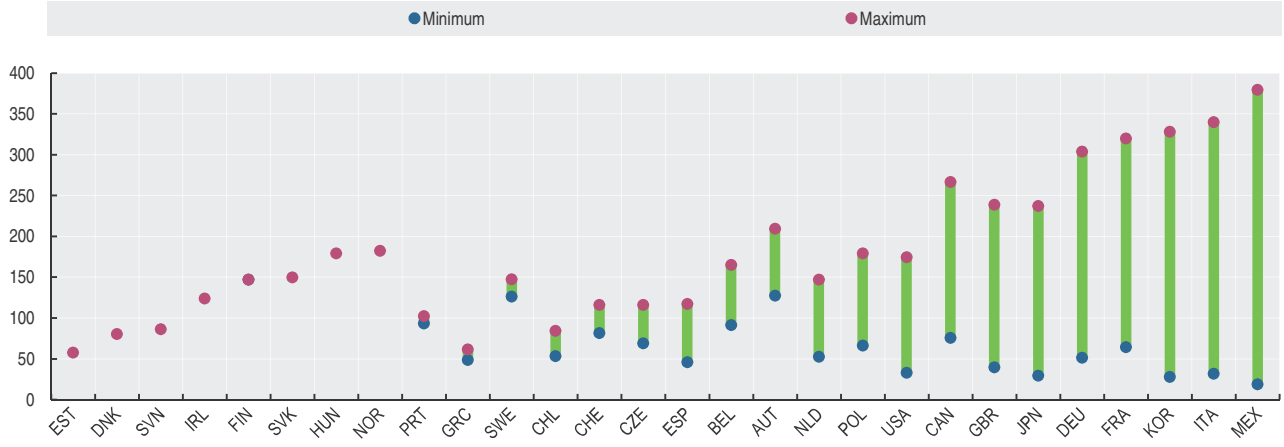
2008



StatLink http://dx.doi.org/10.1787/888933026164

Metropolitan areas range in CO_2 emissions per capita

2008 (country value = 100)



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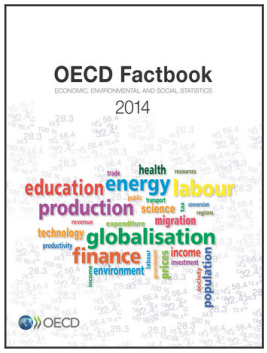

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