



Cities tackling climate change: a new strategy for mitigation

Cities are key players in global greenhouse gas (GHG) emissions. A new World Bank study has proposed a three-stage plan for mitigating climate change at a local level. Its recommendations include improving urban infrastructure and encouraging lifestyle change, but most importantly, clarity in the way urban GHG inventories are calculated.

Cities are responsible for 80 per cent of total GHG emissions. With a global population approaching nine billion and an estimated 70 per cent living in urbanised areas by 2050, cities will undoubtedly need to achieve a significant share of emission reduction targets.

However, the World Bank study indicates that the “responsibility” for emissions often apportioned to cities can be misleading and requires a better understanding of emission sources. With their high populations, most cities have lower GHG emissions per capita (per person) than national averages. Exceptions include busy airport and seaport towns, such as Rotterdam, which emits 29.8 tCO₂e (tonnes of carbon dioxide equivalent) per capita, compared to the national average for the Netherlands of 12.67 tCO₂e.

Differences *within* cities can be as large as differences between cities. In Toronto, the lowest emissions per capita (6.42 tCO₂e) were found in inner-city neighbourhoods, made up of high-density apartment blocks within walking distance of public transport. The highest emissions were found in large, single family homes in the suburbs (13.02 tCO₂e), located far from commercial activity.

The study’s key recommendation is to adopt an international standard for determining urban GHG emissions per capita, based on production *and* consumption. This would follow a similar procedure to IPCC guidelines for calculating national inventories, which all Annex I countries are required to submit annually under the United Nations Framework Convention on Climate Change (UNFCCC). This approach means jointly attributing emissions to the area that directly produced them *and* the area that drives their production, not one or the other, as is commonly the case. For example, many high-emitting activities take place in rural areas, such as electricity generation, agriculture or mining, but the products of these activities are largely consumed by urban dwellers. This allows urban per capita estimates to better reflect the consequence of a city-dweller’s lifestyle, regardless of whether or not their daily activities occur within the city boundary.

The accurate use of GHG inventories is only part of the task. The second step for mitigating climate change in cities is to introduce policies that encourage a change towards low-carbon lifestyles. Local initiatives to encourage changes in transport behaviour, such as driving restrictions, congestion charging and privileges for hybrid or alternative fuel vehicles, have led to emission reductions of up to 5 tCO₂e over a period of 40 years in several major European cities, including Barcelona, Stockholm and Zurich. Improvements to infrastructure, such as the efficiency of public transport, high-density housing, energy-efficient criteria for building codes and waste-to-energy programmes, are all potential tools available to cities.

The third recommendation is to maintain a regular, standardised climate change information service to citizens, in order to encourage informed debate between the public and local policy-makers. Action at this level, the researchers argue, is likely to be far more effective than at the national government level. Accurate GHG inventories, achieved through cooperative efforts between European cities, will enable the continuing EU emission reduction commitments to be directed to the areas that will be most responsive, say the researchers.

Source: Hoorweg, D., Sugar, L., Gomez, C. L. T., (2011), Cities and greenhouse gas emissions: moving forward. *Environment and Urbanisation*. DOI: 10.1177/0956247810392270.

Contact: dhoornweg@worldbank.org

Theme(s): Climate change and energy, Urban environments

The contents and views included in Science for Environment Policy are based on independent, peer-reviewed research and do not necessarily reflect the position of the European Commission.

To cite this article/service: "[Science for Environment Policy](#)": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.