

Are cities really to blame?

The *Clinton Climate Initiative* says that cities produce 80 percent of the world's greenhouse gas emissions (GHGs) write **David Dodman** and **David Satterthwaite**. These two distinguished researchers of the International Institute for Environment and Development (IIED) question whether we really do have an accurate picture.



Cities are said to consume 75 percent of the world's energy

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According to our calculations, drawing on the most recent figures of the Intergovernmental Panel on Climate Change (IPCC), cities produce between 30 and 41 percent of these emissions. But actually, the data do not exist to provide an accurate figure which is probably why the IPCC made no estimates for the relative roles of cities, other urban centres and rural areas.

To arrive at any figure for the contribution of cities to GHGs from human activities, some heroic assumptions have to be made. We are clear about the assumptions we made to arrive at the figure of between 30 and 40 percent.

To claim that 80 percent of such emissions come from cities is always a puzzling statistic when 30 percent of emissions come from agriculture and deforestation (almost all of which is outside cities). So perhaps cities account for all other emissions and so contribute to 70 percent of total emissions. But this cannot be correct as there are all the other sources of emissions that are not in cities but in rural areas or in urban centres too small to be considered cities - including many coal, oil and gas fired power stations, many heavy industries and a large percentage of wealthy, high-consumption households. In high-income nations, a large part of the wealthy population do not live in cities. This helps explain why cities in high-income nations have much lower levels of GHGs per person than the average figure for their nation.

Confusion and limitations

The high estimates for the role of cities in global GHGs may be muddling up fossil fuel burning with greenhouse gas emissions. IPCC figures for 2004 suggest that carbon dioxide from fossil fuel use accounted for 57 percent of global anthropogenic GHGs. So cities may have 70 percent of fossil fuel combustion but this would mean around 40 percent of all GHGs.

The figures that overstate the role of cities in global emissions may be making false assumptions. For instance, they may be assuming that all industries and power stations are in cities. Or they may be muddling up 'cities' with 'urban centres' (a considerable part of the world's urban population live in urban centres too small to be considered cities). When cities are said to consume 75 percent of the world's energy, it would be interesting to know what proportion of emissions from industries and power stations are assumed to be within 'cities'.

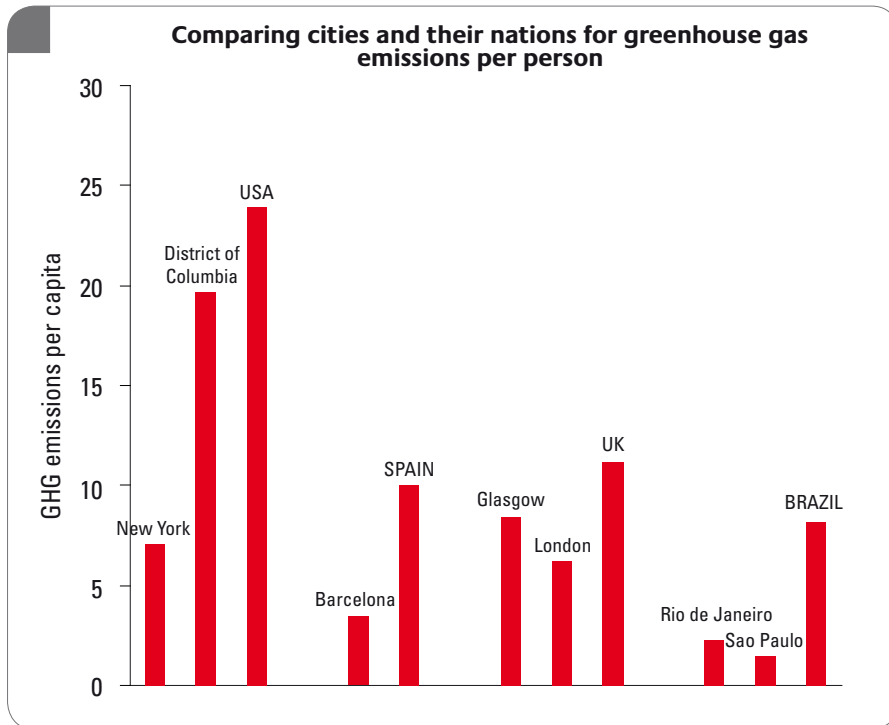
Any attempt at creating a globally comparable emissions index for cities is confounded by boundary issues. It is difficult to compare even relatively simple data - such as population figures - between cities, because of the different measures used to identify these. Are figures for an historic administrative area, the contiguous built-up area, or the larger municipal or metropolitan area which may contain substantial areas of open countryside?

From production to consumption-based analyses

But it is not cities, other urban centres or rural areas that produce GHGs, but particular activities located there. It is also confusing to assign all such emissions to particular places. Most large coal-powered power stations may be outside cities but much of the electricity they produce is used in cities. Large airports are used by far more than the population living in that city - so should the city where they are located get allocated all the aircraft fuel that they use?

If we choose to allocate GHGs not to where they are produced but to the home of the people whose consumption led to these emissions, the entire picture changes. So emissions from, say, the steel plant are not allocated to the place where the plant is located but to the home of the person who bought and uses the goods into which the steel went. Using this kind of GHG accounting system would mean wealthy cities such as London, New York or Tokyo suddenly have much higher emissions per person because most of the goods consumed by their inhabitants are made elsewhere.

The big manufacturing cities in, for instance, China, would have much lower levels of emissions because most of their GHGs are from their industries and these would now be allocated to the cities where those who bought these goods



Source: Dodman, David (2009), "Blaming cities for climate change? An analysis of urban greenhouse gas emissions inventories", *Environment and Urbanization* Vol 21, No 1.

live. The same can be done for electricity – with the GHGs from power stations being allocated to the homes of the people or the businesses and institutions that consumed the electricity. Similarly, GHGs from travel get allocated to the person who does the travelling (or to where they live). Emissions from agriculture and deforestation get allocated to the persons who consumed the food or wood products. Under this kind of scheme, cities may account for 60 or more percent of all GHGs – although this is a bit misleading because most of these emissions are from a relatively small proportion of the world's cities which are the most prosperous ones with the most inhabitants with high-consumption lifestyles.

So here too, it is not cities in general but a small proportion of cities that account for most GHGs. However, even here, a very large part of the consumption-driven emissions would come from wealthy households living outside cities – in urban centres too small to be considered cities and in rural areas. Generally, a wealthy rural household will have higher GHGs than a comparably wealthy city-based household because of greater private automobile use and generally larger heating and cooling demands from their homes.

This consumption-based accounting would also produce even larger differentials between cities in per capita emissions. Cities that con-

centrate wealthy people with high-consumption lifestyles would probably have GHGs per person that were thousands of times larger than most small urban centres in low-income nations.

Inter-city and intra-city differentials

But it is not cities in general but particular cities that have high per capita GHG emissions. Most cities in Africa, Asia and Latin America still have low emission-levels per person; most cities in the least developed countries are likely to have between a twentieth and a hundredth of the emissions per person of say, New York or London.

However, it can be misleading to focus on city averages for per capita figures in that there will be very large differentials within cities. Since the poorest households have very small per capita emissions, the differentials between the individuals with the highest and the lowest per capita emissions are going to be very large.

Do we see cities as problems or solutions?

One justification for emphasizing the very large role of cities in GHGs (including greatly overstating it) is to pay more attention to cities. This is much needed, given how little attention has been given to the role of cities in economic and social development. But it would seem

counterproductive to over-state their contribution to GHGs as this diverts attention from the real problem – the high-consumption lifestyles and life-choices of a relatively small proportion of the world's population, most but not all of whom live in high-income nations.

It also draws attention away from the very large differentials in average GHGs per person between cities and within cities. Finally, focusing on cities in low- and middle-income nations as large GHG emitters (when most are not large emitters) produces the wrong agenda for change. Most of the cities most at risk from the impacts of global warming are in low- and middle-income nations, and it is generally among their low-income populations that risks are concentrated. So these are cities that contribute very little to GHGs but which are far more at risk from the global warming created by GHGs.

What is so urgently needed for cities and other urban centres in low-income nations is a focus on adaptation, including getting the protective infrastructure in place so their populations are not seriously impacted by more extreme weather or sea level rise or constraints on fresh water supplies.

But perhaps worse than this, blaming cities for most GHGs misses the point that well-planned and governed cities are central to delinking a high quality of life from high levels of consumption (and so high GHG emissions). This can be seen in part in the very large differentials between wealthy cities in gasoline use per person. Most US cities have three to five times the gasoline use per person of most European cities – and it is difficult to see that Detroit has five times the quality of life of Copenhagen or Amsterdam. Singapore has one-fifth of the automobile ownership per person of most cities in other high-income nations, yet also has a higher income per person. It is also evident in the fact that many cities in high-income nations have GHGs per person that are far below their national averages.

Cities have long been places of social, cultural economic and political innovation, and indeed, in high-income nations, city politicians often demonstrate a greater commitment to GHG reduction than do national politicians.

Achieving the needed reduction in global greenhouse gas emissions depends on seeing this potential of cities to combine high quality of life with low greenhouse gas emissions and acting on it. ♦