Blaming Cities for Climate Change?

An analysis of urban greenhouse gas emissions

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Greenhouse Gas Emissions from Cities

Key Points

1. Current estimates of the contribution of cities to greenhouse gas emissions are inaccurate.
2. Well-governed, well-managed, cities can play an important role in reducing greenhouse gas emissions.
3. Existing frameworks for allocating emissions do not take sufficient account of ‘consumption’ – with important consequences for equity and policy.

Source: Intergovernmental Panel on Climate Change

Urban Greenhouse Gas Emissions Inventories

<table>
<thead>
<tr>
<th>Region</th>
<th>GHG Emissions per capita (tonnes CO₂eq)</th>
<th>National GHG emissions per capita (tonnes CO₂eq)</th>
<th>City per capita emissions as percentage of national</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Barcelona (1996)</td>
<td>3.4</td>
<td>10.03 (2004)</td>
<td>33.9%</td>
</tr>
<tr>
<td>Glasgow (and the Clyde) (2004)</td>
<td>8.4</td>
<td>11.19 (2004)</td>
<td>75.1%</td>
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<tr>
<td>North America</td>
<td></td>
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<tr>
<td>District of Columbia (2005)</td>
<td>19.7</td>
<td>23.92 (2004)</td>
<td>82.4%</td>
</tr>
<tr>
<td>Toronto (2001)</td>
<td>8.2</td>
<td>23.72 (2004)</td>
<td>34.4%</td>
</tr>
<tr>
<td>South America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rio de Janeiro (1998)</td>
<td>2.3</td>
<td>8.2 (1994)</td>
<td>28.0%</td>
</tr>
<tr>
<td>São Paulo (2003)</td>
<td>1.5</td>
<td>8.2 (1994)</td>
<td>18.3%</td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Beijing (1998)</td>
<td>6.9</td>
<td>3.36 (1994)</td>
<td>205.4%</td>
</tr>
<tr>
<td>Seoul (1998)</td>
<td>3.8</td>
<td>6.75 (1990)</td>
<td>56.3%</td>
</tr>
<tr>
<td>Tokyo (1998)</td>
<td>4.8</td>
<td>10.59 (2004)</td>
<td>45.3%</td>
</tr>
</tbody>
</table>

Source: various, listed in paper
Well-governed, well-managed cities can play an important role in reducing GHG emissions

1. The advantages of density:
   heating, cooling, lighting, public transportation

2. The responsibilities of urban authorities:
   setting targets, land use planning, regulations

3. The opportunity for technological innovation:
   CHP, waste-to-energy, spread of new ideas

4. The co-benefits of mitigation:
   reduced fuel costs, increased traffic safety

‘Production’ vs ‘Consumption’ of GHGs

Emissions can be allocated to the location of release (‘production-based’) or to the location of the final consumption of the finished product (‘consumption-based’)

“In service-oriented cities, consumption-related emissions are more important than those produced by production” (Bai 2007)

GHG emissions per capita are very different from individual carbon footprint
**Policy implications:** local emissions inventories are a useful tool for meeting mitigation challenges

**Future research** to meet policy needs:
- standardised methodology to facilitate comparisons
- larger data-set (particularly from low- and middle-income nations)
- resolution of ‘definition’ and ‘boundary’ issues
- resolution of ‘production’ and ‘consumption’ approaches

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