

## Climate Change and Urban Mobility

### Definitions

Climate change reflects abnormal variations to the expected climate within the Earth's atmosphere and subsequent effects on other parts of the Earth.

### Context and Policies

Cities cover less than one per cent of the earth's surface but are disproportionately responsible for causing climate change. Greenhouse gas emissions from transport are a key contributor to global climate change. Over the past three decades, carbon dioxide emissions from transport have risen faster than those from all other sectors and are projected to rise more rapidly in the future.

At present industrialized countries are the main sources of transport emissions. However, the proportion of emissions being produced in developing countries is increasing rapidly, particularly in countries such as China, India, and Indonesia.

With the signing of the Kyoto Protocol in 1997, the first legally binding international agreement to reduce greenhouse gas emissions was established. As of May 2007, 175 parties have ratified the agreement, covering over 60% of global emissions. The industrialised countries who sign up to the treaty are legally bound to reduce worldwide emissions of six greenhouse gases by an average of 5,2% below their 1990 levels by the period 2008 to 2012. The Kyoto Protocol also includes mechanisms, which allow industrialised countries to meet their targets by reducing emissions elsewhere, either through purchasing carbon credits or by funding projects in developing countries using the Clean Development Mechanism (CDM) or Joint Implementation (JI).

### Issues

Transport is proving to be one of the most difficult sectors in which to reduce greenhouse gas emissions as there are numerous small emission sources (i.e., vehicles) and, additionally, there is a seemingly close relationship with economic development.

Reducing greenhouse gas emissions may not be high on the local agenda of priorities for citizens. Controversial measures may result in (political) decision-makers coming under attack from the press and public—putting successful implementation at risk. It is therefore important to assess and present the range of co-benefits that can be achieved through the implementation of sustainable transport instruments, helping to meet local priorities. Co-benefits include health and safety, the economy, accessibility to key services and activities and reduced air pollution.

### Actions

There are essentially three ways to reduce greenhouse gas emissions from urban transport:

- Avoid travel or avoid travel by motorised modes;
- Shift to more environmentally friendly modes; and
- Improve the energy efficiency of transport modes and vehicle technology.



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### Resources

#### Documents

- **Climate Change Mitigation in the Urban Transport Sector**, 2003, Stephen Karekezi, Lugard Majoro and Todd M. Johnson, World Bank, Washington DC (USA)
- **Considering Climate Change in Latin American and Caribbean Urban Transportation: Concepts, Applications, and Cases**, 2009, Lee Schipper, Elizabeth Deakin, Carolyn McAndrews, Lynn Scholl and Karen Trapenberg Frick, Center for Global Metropolitan Studies, University of California, Berkeley (USA)
- **Greenhouse Gas Scenarios for Chile**, 2002, Raúl O'Ryan, Daniel Sperling, Mark Delucchi, Tom Turrentine, Pew Center on Global Climate Change (USA)
- **Greenhouse Gas Scenarios for Delhi, India**, 2002, Ranjan Bose and Daniel Sperling, Pew Center on Global Climate Change (USA)
- **Greenhouse Gas Scenarios for Shanghai, China**, 2001, Hongchang Zhou and Daniel Sperling, Pew Center on Global Climate Change (USA)
- **Greenhouse Gas Scenarios for South Africa**, 2002, Jolanda Pretorius Prozzi, Clifford Naudé and Daniel Sperling, Pew Center on Global Climate Change (USA)
- **Promoting Global Environmental Priorities in the Urban Transport Sector: Experience from World Bank Group – Global Environment Facility Projects**, 2006, Global Environment Operations, Environment Department, The World Bank, (USA)
- **The Urgent Need for "Smart Urban Transport" to Combat Climate Change in the People's Republic of China**, 2008, Toshiyuki Yokota and David S. Sobel, Asian Development Bank, Manila (Philippines)
- **Transport and Climate Change: Module 5e, Sustainable Transport: A Sourcebook for Policy-makers in Developing Cities**, 2007, Holger Dalkmann and Charlotte Brannigan, GTZ, Eschborn (Germany)
- **Urban Transport and Climate Change Action Plans**, 2009, Armin Wagner (Ed.), GTZ, Eschborn (Germany)

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Although the level of greenhouse gas reduction that could be achieved by these approaches is difficult to predict, reductions are most likely to be achieved where a higher share of public transport and/or non-motorised modes is attained (for more information see "Transport and Climate Change" under Key Documents). Accessibility resource appraisals identify the best value-for-money solutions for tackling accessibility barriers. Accessibility Plans set out how to improve access to employment, learning, health care, food shops and other services of local importance, particularly for disadvantaged groups and areas.

## Sources of Funding

**The Clean Development Mechanism (CDM)** allows industrialised countries with a greenhouse gas reduction commitment under the Kyoto Protocol to invest in emission reduction projects in developing countries.

**Joint Implementation (JI)** allows industrialised countries with greenhouse gas reduction commitments to invest in emission reducing projects in other industrialised countries.

**The Global Environment Facility (GEF)** was set up to fund projects (including urban transport projects) and programmes aimed to protect the global environment in beneficiary nations.

## Tools

Climate Action Plans: More and more cities around the world are developing dedicated Climate Action Plans to reduce Green House Gas (GHG) emissions and improve the local air quality for their inhabitants. The transport sector usually plays a crucial role in any such strategy. In many cases, transportation is the primary source of CO<sub>2</sub> and other GHGs, contributing up to 40 percent of the cities' total emissions. The measures initiated to reduce these negative impacts of urban transport take many forms. Increasing the share of Public Transport and non-motorised modes such as walking and cycling are core elements in many emission reduction strategies, but most often, they are supplemented by other short- and long-term measures. One key feature of most actions proposed is that they provide several co-benefits: Many options not only reduce GHG emissions and improve air quality, but also enhance energy efficiency and – especially in the developing world – contribute to better transport services for the poor (see "Urban Transport and Climate Change Action Plans", under Key Documents)

## Media

- **Curbing CO<sub>2</sub> emissions from road transport**, 2008, European Environment Agency (EU)
- **Ecodriving, a cleaner and cheaper solution**, 2009, European Environment Agency (EU)

## Presentations

- **Carbon Footprint Methodologies for Development Projects and Case Studies**, 2009, O. Grandvoinet and C. Bernadac, Agence Française de Développement, Paris (France)
- **Climate Change and Transport in India: Initiatives and experience**, 2009, O.P. Agarwal, Institute of Urban Transport (India)
- **Climate Change Mitigation Initiatives in Urban Transportation – Strategies to Promote Non-Motorized Modes in Indian Cities**, 2008, Prof. Sudhakar Yedla, Indira Gandhi Institute of Development Research (IGIDR), Mumbai (India)
- **Planning Australian transport to stabilise the climate at 2-3 degrees C hotter than today**, 2008, Patrick Moriarty and Damon Honnery, Monash University (Australia)
- **Urban Transport and Climate Change Action Plans**, 2009, GTZ, Eschborn (Germany)
- **Urban Transport in Asia: Towards Climate Change Mitigation**, 2009, Jamie Leather, Asian Development Bank, Manila (Philippines)

## Recommended Links

- **C40 cities**, (UK)
- **Transport and Climate Change**, SUTP (Thailand)

## For further information

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