



Tool kit for reducing carbon emissions from transport.

The economic impact of carbon use and transport

Using the results from formal economic models, the recently published Stern Review (Oct 2006) estimates that the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever if strong corrective action is not taken now. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20% of GDP or more.

In contrast, the costs of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change – can be limited to around 1% of global GDP each year.

The investment that takes place in the next 10-20 years will have a profound effect on the climate in the second half of this century and in the next. Actions now and over the coming decades could create risks of major disruption to economic and social activity, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century. And worse it will be difficult or impossible to reverse these changes.

In Europe 80% of the population live in urban areas producing most of the wealth and GDP for the region. But urban transport already accounts for 40% of the CO₂ emissions from road transport and this is growing in both Europe and world wide. Globally emissions from transport will grow probably fastest in the developing world, especially those economies that are growing fast such as India, China and Brazil.

The time for concerted action

The following outlines a list of tools available and examples of actions and measures taken that reduce CO₂ emissions from transport.

- 1 Reducing traffic as the number of motorized trips world wide is growing faster than improvements in energy efficiency;
- 2 Technical improvement to increase vehicle energy efficiency, eco-procurement and using alternative fuels;
- 3 Optimal choice of transport for trip by all citizens;
- 4 Maximizing efficient use of mode per vehicle/km;
- 5 Reduce journey distances;
- 6 More energy efficient mobility behaviour and eco driving training;

Case studies and examples

In many cities in the developed world the share of public transport has remained stable over the past five years and in some places increased. Taking the overall increase in trips this means that more are being taken by public transport.

Recent annual increase in patronage

Paris	+ 4%
Brussels	+ 5%
London	+ 4%

London, UK

London emits about 42 million tonnes of carbon dioxide each year. The transport sector, excluding an allocation of emissions from aviation, accounts for about 20% of this or about 10 million

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UITP, the International Association of Public Transport
Rue Sainte Marie 8, B 1080 Brussels, Belgium Tel + 32 2 673 6100 Fax + 32 2 661 10 72



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tonnes. Road transport - of one form or another - is responsible for about 80% of CO2 emissions. Cars use in London emits almost 5 million tonnes of carbon dioxide each year and freight is responsible for a further two and a half million tonnes. Public transport provides 9 million trips daily produces about 2 million tonnes of CO2. In London, the split is relatively even between buses, the Underground, heavy rail services and taxis.

Results of setting a price on entering one square mile of the inner city – the congestion charging zone

- Ø 4% modal shift from car achieved in London since 2000
- Ø Charge coupled with significant improvements in public transport
- Ø 16% reduction in CO2 emissions within zone
- Ø Enlarging zone – 7 million people live in London 20% don't own a car
- Ø Mayor more popular than before and people have changed their mobility behaviour

Perth, Australia

10 million car trips have been cut via a travel demand programme addressing 143,000 residents in Perth, Western Australia has avoided 30, 000 tonnes of CO2

In

Car trips	-10%	72 less per year or cutting out between 2 and 3 per week per person
Car km	-13%	less 750 km per year
Public transport	+ 18%	+ 11 trips per year
Walking trips	+ 26%	+ 33 trips made per year
Cycle trips	+58%	+ 12 trips per year per person

The most impressive changes such as people selling their second car were made in areas that were planned with a good network of public transport routes, walking and cycling paths showing the importance of urban design in changing behaviour.

Lisbon, Portugal

- Ø In 2004, 801 210 000 passenger kilometres were made by metro in Lisbon Metropolitan Area =>79, 000 ton CO2/year avoided
- Ø BUT only 19% of population uses the subwayfrom customer surveys that, if there was no subway, 60% of those people would shift to individual transport and the remaining 40% would shift to bus, we would have a net value of emissions of about 185 kton CO2/yr.¹

¹ For these estimations we assumed that:0.1 kgCO2eq./pkm;
 - The average travel distance of each subway passenger is 4,65 km;
 - Individual transport is made though small to medium cars with fuel consumption;
 - The fuel emission factor is, according to the WBCSD criteria, of 2,34 kgCO2eq./l (gas);
 - The gas consumption rate of a medium car in urban circulation is, according to the WBCSD criteria, of 1gallon/22 miles (approximately 10,7l/100km).
 - The diesel emission factor considered for the bus in urban circulation is, according to the WBCSD criteria, of 0,19 kgCO2eq./pkm.