Reducing CO₂ Emissions in the Transport Sector

A recent paper has reviewed ways in which technological and behavioural change can reduce the consumption of fossil fuels and, therefore, greenhouse gas emissions, in the transport sector. The author concludes that even though technology improvements are indispensable to meeting the long-term CO₂ targets, in the short term, policies to change behaviour and travel habits are critical if the benefits of technological options are to be achieved.

The transport sector is responsible for 21% of total greenhouse gas (GHG) emissions in the EU-15 (excluding international aviation and maritime transport). While emissions from most sectors (e.g. energy supply, industry, agriculture, waste management) dropped between 1990 and 2004, emissions from transport increased substantially. Indeed, in spite of improvements in the energy efficiency of different means of transport and the introduction of renewable fuels, emissions of greenhouse gases are steadily increasing because the technological solutions are not sufficient to offset the observed increase in transport volumes. In particular, road transport contributes 93% of total transport emissions. However, emissions from international aviation are growing fastest with an increase of 86% between 1990 and 2004.

A British researcher has reviewed the impact of various modes of transport with respect to greenhouse gas emissions, and analysed approaches through which society can adapt to reduce the impacts.

According to the paper, car use, aviation and road freight are the principal contributors to greenhouse gases from the transport sector. The proposed approaches to reduce emissions from these three problematic areas include:

- **Car ownership and use.** Policies are required to encourage a modal shift onto public transport and other transport alternatives such as cycling and walking. This can be achieved by enhancing the attractiveness of alternatives to car use through “soft” transport policy measures (e.g. high occupancy vehicle lines encourage colleagues to carpool and share the trip to work via a common travel plan). However, small cars are more efficient and use less fuel. Therefore, the use of this type of vehicle should be promoted by changing purchasing habits (e.g. tax incentives on smaller cars). Finally, this can be further reinforced by targeted marketing and raising public awareness (e.g. car labelling, ecological driving campaigns).

- **Road freight.** There is a need to increase public awareness to encourage regional production over medium timescales. A modal shift (i.e. to rail or boat) is also desirable, although not always possible. Haulage companies should use new technologies and improve logistics in order to combine larger vehicles with efficient vehicle loading to reduce empty running and freight kilometres.

- **Aviation.** There is an urgent need to limit the current growth of aviation, which can only be achieved through international agreements to impose a tax on aviation fuel. Furthermore, behaviour needs to be changed by making long distance rail travel more financially attractive than short haul flights.

The author argues that improvements in energy efficiency and research into new fuels are crucial to achieving the required reduction in CO₂ emissions. Nevertheless, technological solutions, which currently dominate transport and climate change policy, are expensive and represent a long term solution. In the short term, policies and regulations encouraging voluntary changes in behaviour and travel habits, and in particular, promoting a shift to less polluting transport modes, are a key factor in stabilising CO₂ emissions in the transport sector.

Strategies to reduce the current contribution from the transport sector to greenhouse gas emissions should therefore not only rely on technological developments but use a combination of taxes, regulations, better technologies and demand restraint.

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**Additional information:** The EC’s LIFE programme contributes to the reduction of greenhouse gas emissions and energy efficiency in the transport sector. Numerous LIFE projects have focused on alternative fuels and vehicle technologies, consumer information and behavioural change, public transport and inter-modality, as well as on traffic management and intelligent transport systems (see thematic list).

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