

## The Urgent Need for “Smart Urban Transport” to Combat Climate Change in the People’s Republic of China

By Toshiyuki Yokota and David S. Sobel

- **Increased transport and associated CO<sub>2</sub> emissions contribute to climate change**
- **Cities are a primary emissions source**
- **Enhanced planning, use of technology, and incentives are “smart transport” options**

The Asian Development Bank recently supported technical assistance on resource optimization in the road sector in the People’s Republic of China (PRC) where a methodology on measuring CO<sub>2</sub> emissions for road projects and a handbook on awareness of climate change and eco-transport were developed. A key conclusion is the urgent need for “smart urban transport.”

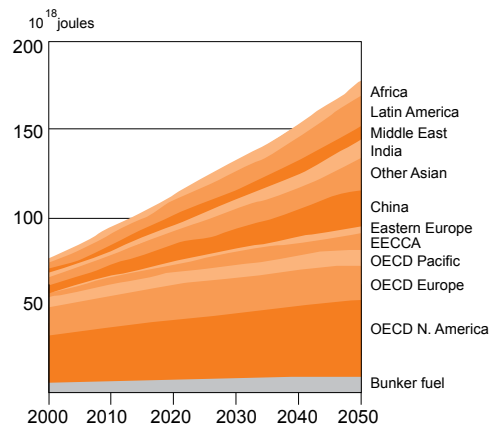
**Transport and climate change are linked.** CO<sub>2</sub> emissions are surging in the PRC, which has become the world’s second largest oil consumer after the United States. Vehicles account for about 30% of total oil consumption and this amount is projected to reach 57% by 2020 in the PRC. Transport accounts for 14% of CO<sub>2</sub> emissions in the world. Energy consumption related to transportation is growing at an annual rate of 6–9%, and the CO<sub>2</sub> emissions are expected to grow in lockstep with energy consumption over the next 40 years (see figure).

**The transport–climate link is becoming more urban.** Urban areas have been transformed by migration from rural areas. Over 300 million people have moved from the PRC’s countryside to cities, increasing urban dwellers from 26% to 40% of the population between 1990 and 2005. This shift has rapidly increased the demand for public transport. Current preference for private cars in the PRC is causing public transport services to deteriorate. Due to the high demand of transport and congestion, urban areas are a major source of CO<sub>2</sub> emissions.

**“Smart urban transport” is needed.** Strategic planning and use of information technology (such as transport demand management) help increase the capacity of existing infrastructure by managing traffic flow. The “smart” approach in urban transport helps combat global and social issues, such as climate change and urban poverty.

For example, the use of congestion charges has proven to be feasible and successful in Singapore since 1973; and London and Stockholm have recently adopted the same approach with great success (20% reduction in CO<sub>2</sub> emissions in London, and

**Projection of transport energy**



Source: IPCC Working Group III, The Fourth Assessment Report “Climate Change 2007 – Mitigation of Climate Change” (2007).

13% in Stockholm). Public transport is another key to combat climate change since the average CO<sub>2</sub> emission/person from a bus (25 g/person-km) is less than one fifth that of a private car (150 g/person-km).

**Incentives can encourage “smart urban transport.”** These include:

**Improved Planning.** Plans should squarely address energy consumption and emissions. The Kyoto Protocol supports the Clean Development Mechanism, which can be an incentive to promote public transport in the PRC and sell emission credits to developed countries.

**Upgraded Technology and Awareness Raising.** Switching to hybrid vehicles (combined with vehicle taxes, congestion charges, and promotion of alternative fuels) can reduce fuel consumption and the CO<sub>2</sub> emissions by about 30%. Eco-driving, with awareness raising among drivers, freight transport operators, and other stakeholders, can reduce it by 10–20% or even more. This will inevitably result in increased awareness among stakeholders about climate change and reduction of CO<sub>2</sub> emissions.

### For further information

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