

PLANNING AND DESIGN FOR SUSTAINABLE URBAN MOBILITY

GLOBAL REPORT ON HUMAN SETTLEMENTS 2013

The true cost of privatized motorization

Traffic congestion is a very visible manifestation of over-dependence on private motor vehicles in urban areas, but the true costs are far greater and less visible, says the United Nations Human Settlements Programme, UN-Habitat.

The *Global Report on Human Settlements 2013 - Planning and Design for Sustainable Urban Mobility*, says that although public transport systems very rarely run at a profit, they are still more cost-effective than private motor vehicles, not only in economic terms but also in terms of environmental and social costs, primarily in terms of health, climate change impacts, community severance and traffic accidents.

“Urban mobility will always use resources and generate externalities, but its environmental, social and economic impact can be substantially reduced so that it remains within acceptable limits and makes a strong contribution in terms of productivity and citizen well-being,” says UN Under-Secretary-General and UN-Habitat Executive Director, Dr Joan Clos. “The benefits of providing efficient and effective public transport systems go far beyond easing congestion in our streets.”

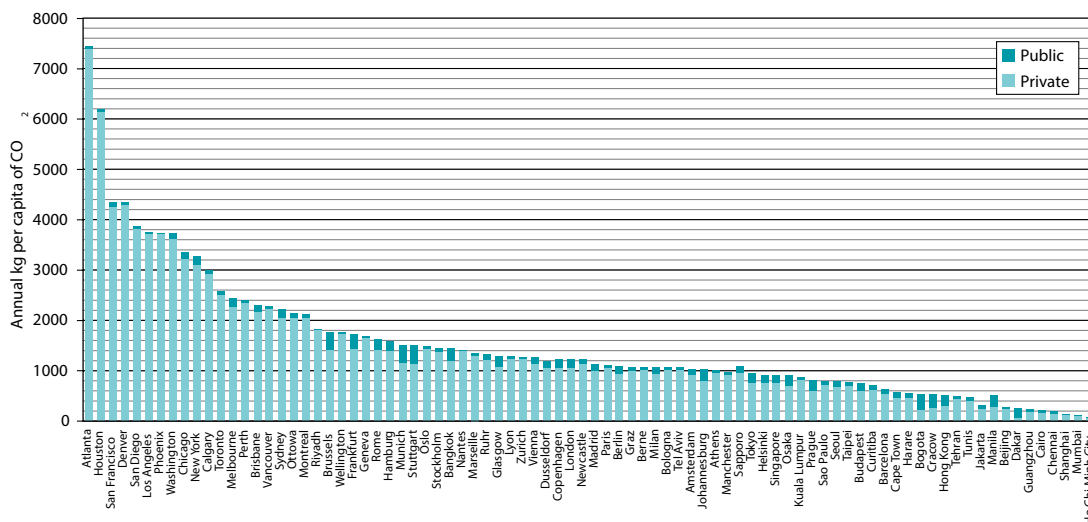
Rising incomes in developing countries are fuelling the already growing reliance on motor vehicles worldwide, and it is often seen as a social status symbol to own a car (or a motorbike). In China, for example, individual incomes almost doubled while car ownership nearly tripled between 2002 and 2007. Likewise, in many African countries the introduction of import-liberalization policies during the 1990s made it cheaper for households to buy used imported vehicles.

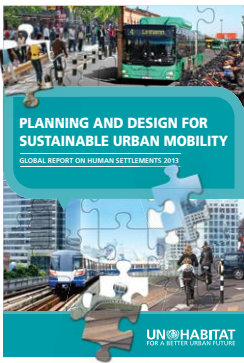
Increased car ownership rates are likely to increase the global emissions of greenhouse gases. Nearly a quarter of total of the global energy-related carbon dioxide emissions can be attributed to the transport sector. Globally, carbon dioxide emissions from transport have increased 85 per cent between 1973 and 2007. Worldwide, the UN-Habitat adds in the report, more energy and carbon dioxide emissions per capita is used in private than in public transport; in Africa the ratio is 3 to 1, and 50 to 1 in the United States.

The Freight Challenge

The report says road freight accounts for about 25 per cent of the global transport-related carbon dioxide emissions. Moreover, it says there has been an “explosive growth” in freight vehicle usage in many countries that have or are shifting to capitalist economies. From 1993 to 2009, truck traffic grew by 165 per cent in Poland, 213 per cent in Croatia, and 247 per cent in the Czech Republic. Many of

Figure 8: Per capita emissions of CO₂ from passenger transport in 84 cities (1995)





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these have been running longer than the manufacturer's estimated lifespan, meaning they are less efficient and more polluting than newer models.

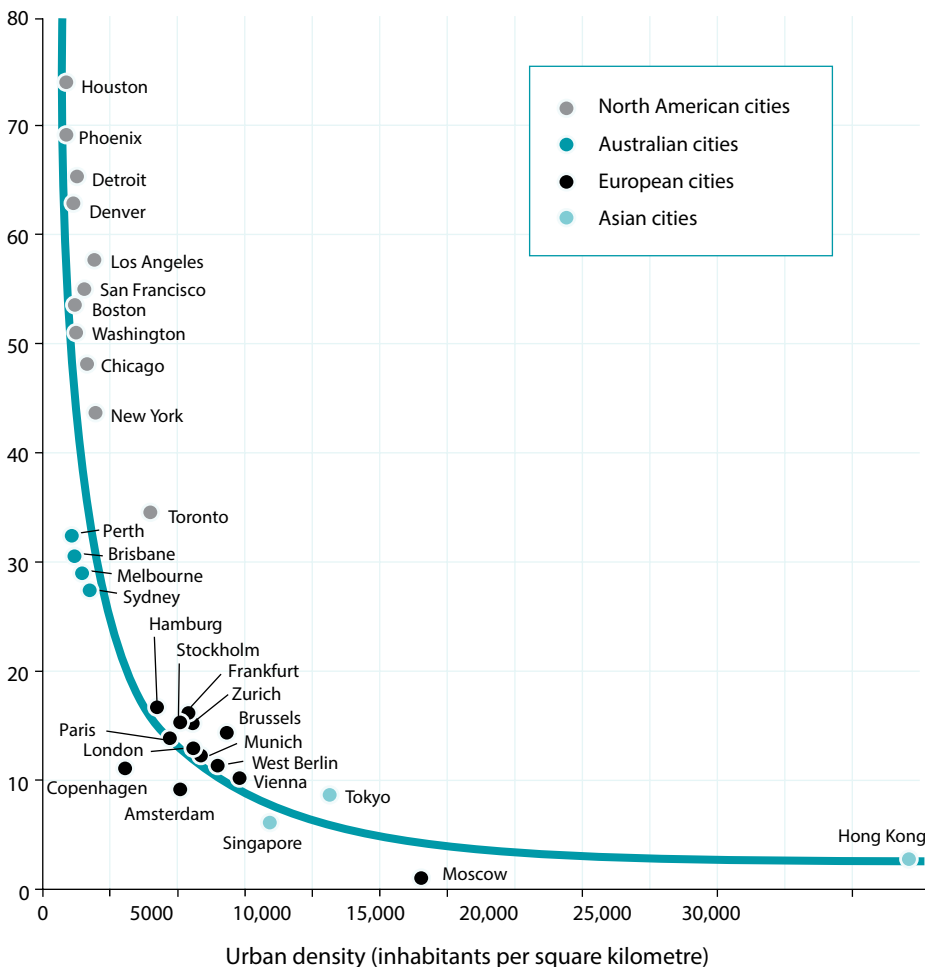
The oil dependence of road freight transport has hiked the amount of transport sector energy use and carbon dioxide emissions, the main transport-related greenhouse gas. In large European cities, freight transport produces one-third of transport-related nitrogen oxides and half of transport-related particulate matter emissions, mostly due to a higher reliance on diesel fuels for trucks. In London, the report says, freight distribution accounts for less than 10 per cent of urban traffic but contributes to 30 per cent of nitrogen oxide emissions and 63 per cent of particulate emissions. In the metropolitan area of Mexico City, about 60 per cent of particulate matter emissions by mobile sources were from freight vehicles.

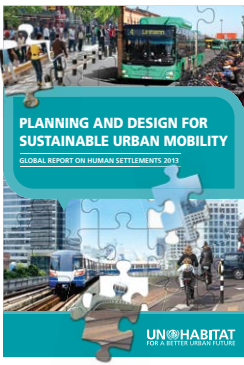
Environmental dimensions of urban mobility

Emissions are much lower in developing countries – but they are growing. In Asia and Africa emissions are about one-third or one-quarter the global average, except for the Middle East, where emissions per capita are similar to those in Europe.

Figure 7: Influences of urban densities on transport-related energy consumption (1989)

Transport-related energy consumption
Gigajoules per capita per year





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By 2050, global carbon dioxide emissions from motor vehicles could be three times as large as they were in 2010, the report says. The outlook is gloomy. Increasing greenhouse gas emissions and global temperatures underscore the urgency of weaning the transport sector from its dependency on oil and automobility.

The report says there is considerable variation in the amounts of carbon dioxide produced by different countries and regions depending on urban form, financing and taxation policies, and the quality and affordability of different transport modes. The more dense the urban form, the greater the decline in carbon emissions from transport. For instance, Austria's urban areas are over four times denser than Australia's, and generate only 60 per cent of the amount of carbon dioxide per person than Australia's urban areas do.

Mode share is also an important factor: energy consumption levels decrease as the share of trips on public transport and non-motorized modes increase. The report says that in 2007, per capita energy consumption in the transport sector was more than three times higher in the United States than in Japan and Germany. In Japan, 40 per cent of all urban motorized trips are by public transport; in the United States it is 4 per cent. Greenhouse gas emissions per passenger of bus, rail and trams is about one-twelfth that of the car, the report states.

Social externalities

Urban transport is also a major source of air and noise pollution, with serious public health impacts. Long-term, repeated exposure to high levels of ozone and particulates can diminish lung functions and trigger asthma and other respiratory illnesses, the report says. In addition, the reliance on private motor vehicles means people walk less which therefore increases obesity rates and health issues in general. The lack of social interaction found during public transport use has led to community severance while the increased number of personal motorized vehicles has led to an increase in road traffic accidents.

While the true cost of over-dependence on private vehicular use in urban areas is hard to calculate it is clear that it is far greater than merely the visible effect of congestion. Increased carbon dioxide emissions and traffic accidents as well as reduced citizen health and communal bond all have long-term implications for the well-being of our urban populations. Effective urban planning combined with realistic and integrated transport planning is urgently needed to start to turn around some of these negative externalities and decrease our dependence on private motorised vehicles in urban areas.

Vehicle Kilometres Travelled (VKT)

- Stopping sprawl, promoting public-transport oriented growth, and creating compact, walkable neighbourhoods that reduce VKT per person are the cornerstone of campaigns to reduce the environmental and social negative externalities of urban transport
- The European Union's Climate Change Programme calls for the promotion of "low-emission land-use activities" as a way to moderate VKT growth
- It is important to track VKT per capita, as it is the strongest single correlate of environmental degradation and resource consumption in the urban transport sector
- Projections are that without substantial reductions in VKT per capita worldwide, all increases in fuel-efficient and low-carbon fuels will only slow, not reverse, the rise in per capita carbon dioxide emissions
- Accessibility lies at the core of achieving an urban form that is environmentally sustainable, socially equitable and inclusive