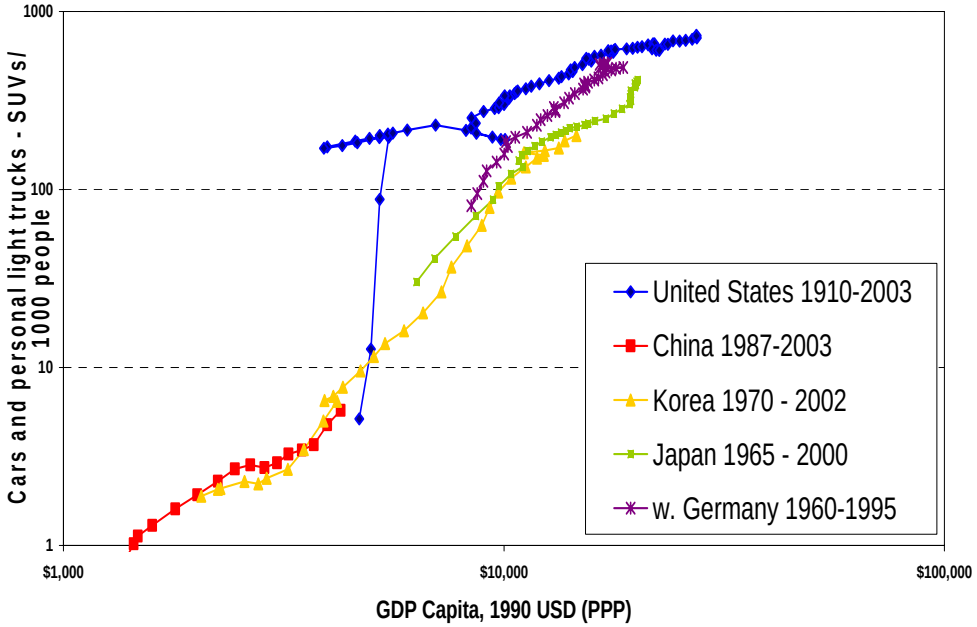
Hyper Motorization in China – Is there no Way Back?*[1]

Lee Schipper, Ph.D
Director of Research
EMBARQ, the WRI Center for Sustainable Transport

By any definition, China's urban transport is becoming less sustainable. Congestion, traffic accidents and fatalities, as well as urban air pollution from the transport sector have all been increasing over the past two decades. For both accidents and pollution, the accidents or emissions per km of many pollutants are falling, but not as rapidly as the total distance traveled is increasing, particularly distance that individual passenger automobiles travel. And the rise of individual motorized vehicles means that more and more pedestrians and cyclists are crowded off city streets.

What makes urban transport in China – transport of people and goods in, around, and through cities – particularly vulnerable to problems is the high density of population. This means both a larger likelihood of collisions among people and vehicles, and a higher density of emissions from vehicles than in a sparser, rural setting. And with so many more people in an urban region, the overall impact of exposure to air pollution and congestion is higher simply because more people are affected by any of these problems.



The speed of China's motorization is at the root of the problem. The figure shows how automobile ownership in China, Korea, Japan, the US and Germany grew as each country's per capita GDP grew. The earliest points for the US are from the early 1900s, when cars were still a novelty. Now China is following the trace left by Korea and Japan

[1] Adopted from the introduction of the forthcoming volume "**Urban Transport Options in China: The Challenge to Choose", Lee Schipper and Wei-shiuen Ng, eds. Sponsored by the Energy Foundation and the Hewlett foundation.**

from the 1970s through 1990s. While use development in its early days (1910-1929) was rapid, America was sparsely populated and the overall numbers of cars largely fit into the space available. For China 90 years later, this is certainly not the case.

Cars are cheaper today in real terms and far better and more reliable than they were in the 1910s, and China has managed to reach levels of ownership at lower GDP/capita than the US did. Moreover, China is now the 2nd largest car market in the world, and automobile production is taking off rapidly in China just as electric appliance, computer, and then cell phone production and ownership took off in the past decade, albeit with fewer infrastructure requirements required to support use. Therein lies the problem I call "hypermotorization" – when the ownership of cars grows so rapidly that the public and private infrastructure required cannot keep pace with private ownership and use of cars.

Is there anything to hinder the same development for China? We present a set of car use and fuel consumption scenarios that illustrate the fuel (and resulting carbon dioxide emissions) implied in a continuation of this growth. Rising fuel use and CO2 emissions are of grave concern in their own right, yet as experience from OECD countries has shown, high fuel prices along are unlikely to retard significantly the rise in car ownership. But we argue that the only developments that can slow motorization's pace must be those that come from the mounting difficulties car users themselves face as cities run out of room on the road as well as space for more roads.

We argue instead that no-nonsense policies to slow the growth in private vehicle usage must be established quickly to save the cities of China from the present crunch becoming worse. The alternative must be based on a strengthening of bus, rail, and above all non-motorized modes in Chinese cities, cemented by careful land use planning to avoid the sprawl of cities beyond what these modes can usefully share. We offer the example of Hanoi, Vietnam, one of the most motorized cities in the world, where two-wheelers might provide a degree of individual mobility with far less demands on space, fuel, and at lower speeds, theoretically less congestion and fewer fatalities. We challenge Chinese leadership to consider where their cities are headed and choose one path or another.

* * *

The EMBARQ web site is at www.embarq.wri.org. The main paper this talk is based on is available at embarq.wri.org/en/Article.51.aspx. EMBARQ's work in Xi'an can be found at embarq.wri.org/en/ProjectCitiesDetail.aspx?id=5 and EMBARQ's work in Hanoi can be found at embarq.wri.org/en/ProjectCitiesDetail.aspx?id=8.

EMBARQ is the World Resources Institute's Center for Sustainable Transport, with global strategic partners the Shell Foundation and the Caterpillar Foundation.

WORLD RESOURCES INSTITUTE
10 G STREET, NE WASHINGTON, DC 20002 USA
tel 202-729-7600 fax 202-729-7798

EMBARQ cities on the move

http://www.embarq.wri.org

Lee Schipper, Ph.D.
www.*EMBARQ*.wri.org

Dr. Schipper earned his Ph.D. in astrophysics, but has devoted his career to earthly problems of transport, energy and environment. He came to *EMBARQ*, the World Resources Institute (WRI) Center for Sustainable Transport, at its founding in April, 2002, where he is Director of Research. *EMBARQ*'s Global Strategic Partners the Shell Foundation and the Caterpillar Foundation support *EMBARQ*'s partnerships in Mexico, Brazil, Istanbul, India and China.

Dr. Schipper came to *EMBARQ* from the International Energy Agency (IEA) in Paris, where he had been visiting Scientist from 1995 to 2001. Previous to that he was Staff Senior Scientist at the Lawrence Berkeley National Laboratory for two decades. He worked in Group Planning at Shell International Petroleum Company in the 1980s and again in 2001. He has been a guest researcher at the World Bank, VVS Tekniska Foerening (Stockholm), the OECD Development Center, and the Stockholm Environment Institute.

Dr. Schipper has authored over 100 technical papers and a number of books on energy economics and transportation around the world. He takes part in numerous prestigious international panels and studies on energy and transportation, and is on the editorial boards of five major journals in the fields.

Dr. Schipper was a member of the Swedish Board for Transportation and Communications Research for four years, and is currently a member of the US Transportation Research Board's Committee on Sustainable Transport and Committee on Developing Countries.

Dr. Schipper brings a unique twist to the transport and energy worlds, having obtained his BA in Music from Berkeley in 1968 (with course work at UCLA). One a member of the UCLA jazz quintet, he still leads a jazz quintet from time to time, and recorded “The Phunky Physicist”, with Janne Schaffer, in Sweden in 1973.