Preparing cities for a world of expensive oil

In the next 20 years, the world's cities will go through a fundamental transformation, not only will cities in many developing countries expand greatly in size and population, but they will have to serve the basic mobility needs of their people in a world of much higher oil prices.

In the second half of the 20th Century, many cities in the world began to emulate the transportation policies of the United States. Developing countries admired US automobile culture, and borrowed US highway design methodologies to reshape their cities around the automobile. Back in the 20th Century, this didn't seem unwise.

Oil prices reached historically low levels, and large, important sectors of the global economy were still engaged in vehicle manufacturing. The cities that grew out of these underlying economic fundamentals tended to make it easy to drive anywhere, and virtually impossible for a person, no matter how motivated, to walk or cycle safely between their home and place of work or even the nearest shop.

The American city was the ultimate manifestation of this economic structure. Roughly 90 percent of Americans rely on private cars for their daily commute, even for very short trips.

In New York City, with the largest mass transit system in the United States, about a third of the population still drives to work. Roughly 72 percent of these trips are less than 5 miles (8km), and 22 percent less than a mile. The average passenger vehicle weight in the US in 2004 was around 4,000 pounds (1,814 kg). Only in the US would so many people find it necessary to bring with them 4000 pounds of vehicle weight to make a trip that could easily be made by walking or cycling, consuming no fuel. This is why the US consumes roughly a quarter of the world's annual oil production.

In developing countries, where per capita incomes are sometimes as low as a dollar a day, only the wealthiest 10 percent of the population are likely to own a private vehicle in their lifetime, so the domination of public space by the motor vehicle directly translates into domination of public space by the ultra-rich. Because population densities are frequently so much higher than in the US, expanding roads in the developing world is generally much more expensive and socially difficult, requiring the forcible relocation of far more people and buildings. As a result, congestion tends to become a problem at much lower levels of motor vehicle ownership. Furthermore, higher density also means more people are immediately exposed to traffic related noise and air pollution. With far more pedestrians and weaker enforcement of poor driving, many more road users are killed. In China, for example, the number of pedestrians killed each year is a state secret, but in one major city with a population of 8 million, there are some 1,000 fatalities a year – roughly double New York with a similar size population.

As large cities of the developing world emulate the American way, obesity and obesity related diseases are rapidly spreading to the developing world as walking and cycling become more difficult. City center blight, a phenomenon previously restricted to the US, is now afflicting many Latin American cities.

There are, however, clear signs this late 20th Century auto-centric adolescence is beginning to pass. While China, Brazil and India become the most important producers of motor vehicles, in the US and many other countries, the importance of motor vehicle manufacturing as a source of employment and GDP growth is dropping rapidly as part of a general trend towards de-industrialization.

Secondly, oil prices are going up. The International Energy Agency (IEA) predicts annual oil consumption will rise by 50 percent between now and 2030, as the US continues to sprawl and the population centers in the developing world motorize. While the IEA says oil prices will remain roughly stable for another two decades, a growing number of experts are challenging this. In his new book *Twilight in the Desert*, Matthew Simmons claims, that Saudi Arabia, for example, is already at its maximum production level.

Higher oil prices may be compensated by lower vehicle costs. China, India, Brazil, Mexico, and other developing countries have moved heavily into motor vehicle manufacturing, and are producing vehicles at incredibly low costs by historical standards. One can buy a new passenger car in India today for only about 5,000 US dollars, and ultra low-cost Chinese motorcycles are flooding into southeast Asia.

Politicians should be preparing themselves for days of expensive oil, cheaper vehicles, few motor vehicle manufacturing jobs, and tight competition for limited road space. Where no government action is taken, the clear winner in this emerging transport market place will be the motorcycle. In China, motorcycle and electric bicycle sales have also skyrocketed. In India, Indonesia, Vietnam, and other parts of south and southeast Asia, motorcycles are an exploding share of the vehicle traffic. Even in Brazil, motorcycle use has grown hugely. While still relatively rare in Africa, motorcycles have also spread to Burkina Faso, northern Kenya, and Uganda, and their success presages a rapid growth in motorcycle use in Africa.

Their affordability helps millions of poorer people travel cheaply using relatively little fuel. Like bicycles, they are also extremely efficient users of road space. But their increasing use is generally also accompanied by escalating road fatalities, dangerous particulate air pollution, and irritating noise pollution. These problems can be solved by regulation. In Kuala Lumpur, Malaysia, an increasing number of Chinese cities like Chengdu, and officially in The Netherlands as well, bicycle facilities are shared with motorcycles.

A growing number of dynamic mayors and governors are winning political power by challenging the needs of motorists over the needs for public space and decent facilities for transit and non-motorized modes. The Mayor of Bogota cancelled a massive ring road and used the money to build 300 km of bike lanes, a state of the art bus rapid transit system, more libraries, playgrounds, and schools. The Mayor of Seoul, Korea, built a 50-mile bus rapid transit system, tore down an elevated highway in the city center, and built many new parks and public spaces. The Governor of Jakarta has already constructed three bus rapid transit lines. Pedestrian zones are also springing up all over Chinese cities. For the first time in history, African cities are developing mass bus transit systems.

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