Car Crazy: The Perils of Asia’s Hyper-Motorization
By Lee Schipper

Asia’s love of vehicles is chokingly and noisily apparent. The number on the roads seems to rise inexorably, so fast in many places that it far outstrips the ability of governments to plan roads and infrastructure for them.

But Asian nations desperate to find ways to cope with the clogged roads and foul air in their cities should not despair, says transport scientist Lee Schipper. Asian car ownership overall is tiny compared with the US and Europe. With the right planning and bold vision, it is possible to reclaim the streets and find more sustainable and more efficient transport systems.

ASIA IS CRAZY ABOUT ITS WHEELS. China’s Geely Automobile is set to buy Volvo as auto sales in China boom. In India, Tata Motor has rolled out the Nano, a mini-car for the middle class, while Japan’s Honda sells top-of-the-line two-wheelers in Vietnam. Even rural Laos and Cambodia are abuzz with motorcycles. The world’s most populous region is taking to the road, and many are overjoyed. Motorcycle or motorcar, personal vehicles are a pillar of development and for many a way to escape poverty. But are rapid increases in vehicle ownership a solution to poverty, or are they leading Asia, particularly its cities, to even greater problems? Will Asia’s wheels grind to a halt? The answer is that for many Asian cities, wheels already have ground to a halt.

The rapid increases in Asian motorization are no surprise to those of us who study transport. The World Business Council for Sustainable Development’s “Sustainable Mobility” project,
problems — traffic fatalities, air pollution, congestion and noise — or more subtle yet difficult issues such as when whole sections of cities are cut off from pedestrian and cycle traffic by the kind of congested highway networks familiar to anyone who has tried to take a stroll through downtown Jakarta, Metro Manila or other mega cities.

WHY IS ASIA DIFFERENT?
On the surface, Asia should have a sustainable transport system. Urban transport across the region is mostly by bus, foot, bicycle or two-wheeler. But when all of this motion is focused in cities, the challenge of sustainable transport becomes particularly acute. First, there are about 200 cities in Asia with populations over a million and thousands with populations over 100,000. In short, Asia is crowded. But the wealth of Asia’s economies is also concentrated in its cities, and with that comes the ability to own individual vehicles. Finally, the

backed by a host of major auto and oil companies, foresaw this boom. Concerned about the impact on both carbon dioxide emissions and the oil market, the group’s 2003 report, “Mobility 2030: Meeting the Challenges to Sustainability,” recommended that the developing world adopt strategies already in use in the West, such as road pricing, vehicle emissions controls, better highways and car pooling as a way to cope with an inevitable rise in vehicle numbers.

More recent work by the International Energy Agency (IEA) projects more rapid growth in vehicle ownership in Asia, but it has sounded alarms. Will Asians be better off with far more cars than today?

The problem is not individual transportation itself — i.e. vehicle ownership. Rather, it is what I call hyper-motorization, which occurs when individual vehicle ownership rises so fast that authorities cannot cope with the associated problems — traffic fatalities, air pollution, congestion and noise — or more subtle yet difficult issues such as when whole sections of cities are cut off from pedestrian and cycle traffic by the kind of congested highway networks familiar to anyone who has tried to take a stroll through downtown Jakarta, Metro Manila or other mega cities.
infrastructure required to support present and future generations of vehicles is also concentrated in urban areas. But in Asia’s big cities, the amount of road space per person, per car or per square meter is often only a quarter to a half of what it is in the US or Europe. That means Asian cities often face massive traffic congestion even though fewer than 20 percent of all trips in cities are taken in cars, and car ownership levels are well below 100 cars per 1,000 people. In comparison, more than half of all trips in European cities are made in cars, and car ownership levels are around 300-500 cars per 1,000 people. In the US, 80 percent of city trips are made in automobiles, and car ownership is over 600 per 1,000 people.

But it took the US and Europe several decades to reach this level, while in Asia it is happening much faster, in part because per capita incomes and urban populations are growing so much more rapidly than was the case in the US or Europe. Indeed, in much of Asia today, middle class urbanites have gone from walking to cycling to riding buses to running their own car or motorcycle within a generation. Few cities have been able to create either the policies or the physical infrastructure to provide fast, efficient, clean public transportation for the majority of people without letting the rise in private vehicles intrude — this is true even in such cities as Hong Kong and Seoul, where the mass transit systems are excellent but traffic congestion remains a problem.

Most national and local governments in Asia have embraced development that favors the small minority in cars, to the detriment of the sizeable minority on motorcycles and the majority still walking, peddling or riding buses. This American-style development, in which individuals outrun collective transport, rarely gives alternatives a chance. Through what amounts to a vicious cycle, each family has an increasingly strong incentive to acquire individual means of transport, which clogs the streets and pollutes the air even more. Those left behind move ever more slowly. Increasingly, the real costs of transportation are imposed on the majority by the minority. The urban landscape evolves towards even more car-oriented development and urban transport becomes unsustainable.

SUSTAINABLE TRANSPORT: NOT JUST ABOUT ENERGY AND CO₂

Sustainable transport is not merely a throwaway phase. The World Bank defines three components of ST — social, economic and environmental sustainability. In simple terms, the United Nations’ definition of sustainability calls for not passing on real costs and damages (what economists call “externalities”) to others or to future generations — this includes damage to present generations in the form of high death rates from air pollution or road accidents or harm to future generations in the form of CO₂ emissions. But even the direct costs of building roads or other transport facilities, particularly in congested areas, are not currently passed on to those who use the facilities. In a sense, Asia has learned from the US how to create a kind of automotive Ponzi scheme, in which roads are built, and when they fill up, more roads are built, without making those who need and use more road capacity pay for that capacity.

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transport industry, define the economic boundaries through licensing and other means so that private and public operators can run safe, clean and fast collective transport systems, and enforce safety and environmental standards. Through most of the 1990s and the early part of the past decade, governance in this area was lacking. This was particularly true where common sense would call for higher fuel prices, measures to limit individual vehicle use in very congested areas, standards on emissions and fuel quality and, equally important, access to public transport for poor and non-motorized middle-class citizens.

What is the worst of these “externalities” depends on who you are. I met a businessman from Jakarta once who was incensed that the city had taken away lanes from car traffic to permit exclusive bus traffic, arguing that his time was valuable, and implicitly that the time of the hundreds of thousands who move rapidly on the TransJakarta Busway had no value. He, riding in his air-conditioned car with a driver, breathes better air and has better accident protection than the vast numbers of motorcyclists, bus riders, pedestrians or brave souls on bicycles. And anyone who has tried to cross Jalan Thamrin in central Jakarta during the day knows how difficult it is to walk even in the “nicest” parts of the city. My friend aside, the worst burden of unsustainable transport falls on the poor and lower middle class, not because of their direct expenditures, but because of the larger costs to their health, safety and time.

Some argue that air pollution is a problem that has technological solutions. Yet technologies to address the problems, while relatively affordable, have only recently been required by the majority of Asia’s local and national governments. But when governments insist on clean fuels and vehicles, this raises costs and always meets objections from private or state vehicle makers and fuel suppliers who lobby, usually with success, for exemptions and delays.

Thus, most of the problems of sustainable transport are related to policies and economics — i.e., governance. In simple terms, transport itself is underpriced — both the cost of roads and fuel. Few governments in Asia are willing to face down...
Transport Asia: An Armchair City Tour

Bangkok: Wow, the Smells! Great idea to drive if you like jams. Look at the train whizzing past overhead! At least there’s an attempt to regulate the traffic flows, even if it is incomprehensible!

Xi’an: View from the Bell Tower Hotel. LOVELY temple, shame about the endless traffic ... Still, at least there aren’t as many ring roads as Beijing’s SIX.

Singapore: No surprise, the roads are organized. They’ve been thinking about this for a while. Electronic road pricing everywhere, but it DOES cut the jams!

Pune: This is more like it. Sustainable transport with a difference! Are elephants listed as vehicles in India? Where’s its license plate?
drivers, transport companies or increasingly powerful automobile manufacturers. And with almost any sidewalk open for parking, vehicle owners don’t even bear the cost of displacing pedestrians at will. Space on the road is underpriced, except in Singapore where electronic road pricing has made a substantial difference in traffic. With the cost of both individual vehicles and infrastructure cheap in most of Asia, it is no wonder there is a boom in the sales of two-wheelers and cars.

**HOW DO WE KNOW WHAT IS SUSTAINABLE TRANSPORT?**

There is no absolute level of sustainable transport. But experts can tell improvement from deterioration. A project I led — the Partnership for Sustainable Urban Transport in Asia (PSUTA), sponsored by the Swedish International Development Agency and the Clean-Air Initiative Asia, based in Manila — worked with leading transport and environmental authorities and experts in Pune, India; Hanoi, Vietnam and Xi’an, China to help develop quantitative indicators of congestion, air pollution, fatalities and other problems arising from transport.

When we started in 2004, one city, I won’t name which, had only intermittent sampling of air quality. A sample deemed indicative of pollution from traffic was collected as a bag of air once every even-numbered month. A foreign bilateral assistance agency — again, I won’t say which — donated money for a lab to measure air pollution emissions from cars and two-wheelers, but there was no money to actually get a representative sample of vehicles and measure them. In another city, the main transport consultants had a great survey of travel patterns, but they had never asked themselves what people spend in terms of money or time to get to work. It was not so much that there was no data, rather that officials had never shared information or figured out what they needed to know. One of the leading transport planners in Xi’an told me, “I never thought about sustainable transport before.” Thanks to the PSUTA project in these cities, authorities, experts and civil society cooperate in a much more quantitative way today than before.

Our team let the officials in these three cities do the talking and ask the questions. Our role was to show them how to build tools to measure the consequences of their planning decisions and policies. As a result of the project, Pune in now engaged in a serious effort to strengthen its bus system, while Hanoi and Xia’n are building bus rapid transit systems (similar to the TransJakarta Busway) and rail/metro systems. Most importantly, authorities in all three cities have learned how to think about interconnected urban systems, not just roads, rails, motors and tires.

Sustainable transport is more than just a problem of mobility and vehicles; it is also one of land use and urban and rural development. As Asian cities expand in response to hyper-motorization, shops and homes are moved to make way for more road space, ironically forcing more homes, jobs and shopping to the urban fringes served mostly by, yes, individual transport. Examples include the satellite city of Gurgaon outside of New Delhi, which seems to be India’s first edge city — or the many “campuses” of Fortune 500 companies outside of Bangalore, with poor transport to and fro. The burgeoning sprawl of Beijing, whose sixth ring road opened fully to traffic in September 2009, and other Chinese cities, meanwhile, portend even greater shifts in land use. Among Asian cities, only Singapore and to some extent Hong Kong recognized this fate — Singapore early on — and found it possible to adjust urban development.

When policies address these transport problems, one benefit is that fuel use and CO₂ emissions are lower than otherwise. This is because better transport ultimately means less use of cars and two-wheelers, better utilization of existing and new transit systems and more and safer access for pedestrian and bicycles. Technology can reduce the fuel use and CO₂ emitted when a vehicle moves a kilometer, but smart, people-friendly cities reduce long travel distances that require
motorized transport. Indeed, it’s not mobility measured in daily kilometers traveled that counts, but rather access to friends, parks, jobs and services that matter. Unfortunately, few Asian cities today are being shaped for people.

The crux of the policy dilemma for urban and non-urban transport, both for travel and freight, is that transport is woefully underpriced. Covering distances by motorized means for those who can afford it is too cheap, while ironically, for the lower middle class, transport to and from work is expensive because it is so poorly organized. Fuel is underpriced and poor in quality, vehicles and their emissions systems are not well maintained and in many countries not well built in the first place. The impression among the public is that vehicles and fuels must be had now, on the cheap, and that somehow the resulting problems will rectify themselves later. Experience, however, shows that this leads to a decades-long vicious cycle that can only be reversed at great cost. One reason is the investment in vehicles and technologies, but the other is the evolution of land use as if cheap transport would always be available. Unfortunately, Asia knows now that the real cost of transport is much higher than what individuals pay.

When urban density is extremely high, as in China and many other parts of Asia, metropolitan rapid transit makes sense both from an economic standpoint and as an element of a total transport system. They are also irresistible politically, particularly when built with other peoples’ money. But when that money only finances the metro itself and not good access to stations, in the long run there is little change in surface traffic.

With the opening of the Wuhan-Guangzhou high-speed rail (HSR) line, China has shown that HSR might make inter-city driving and even air travel obsolete, if the country can build stable corridors between the large cities that HSR connects. When Japan first introduced the “bullet train” in 1964, there were about the same number of cars per 1,000 inhabitants as there are in China today. But China introduced HSR when it had a lower per capita income than Japan at that time, so in a sense, this represents a leapfrog in planning. The same corridors created by HSR could serve markets and bring needed transportation to surrounding rural areas where the delivery of goods is currently dominated by polluting diesel trucks or some combination of two- and three-wheelers — and in some cases, even on foot.

The important lesson is that when transport is considered as a system that involves urban and rural areas and not just individual modes separate from overall land use, access is better assured than if huge sums are spent on isolated projects. Various transport modes must be molded into a system suited for people.

The other lesson, which is good news for Asia, is subtly hidden in all the data about vehicle usage. With so few automobiles per 1,000 inhabitants compared to the US and Europe, Asia is not irreversibly bound to an automobile nightmare. It can still choose another course.

WHAT ASIA NEEDS TO DO
For the most part, Asia can still choose to avoid an unsustainable transport future if local and national authorities act now. Or they can continue on the present path, but before doing so, leaders should visit Latin America to see the chaos on unprepared streets when car ownership reaches 100 per 1,000 inhabitants, and motorcycle ownership is even higher. This bleak reality is already well known in Bangkok, Manila, Jakarta and many other mega-cities in Asia. But that future is not inevitable. Seoul, for example, has shown that a shift is possible, with good outcomes. China, too, has shown that improvements such as newly implemented fuel economy standards can have a noticeable impact.

Money is actually the least of the problems. It is tempting to think otherwise, because metros and other systems are expensive. But my view is that these cost far less overall than the unreasonable path of expanding road infrastructure and allowing the rapid acquisition of millions of private ve-
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Vehicles. While some funding assistance is important to demonstrate the overall sustainability of collective transport, policies that restrain individual vehicle use are even more important, and they tend to save money. They are risky and costly politically, however, which is why funds are needed to finance public transit demonstration projects. The danger is that when a flood of other peoples’ money is spent on transit systems, the real costs of transport will be invisible and the vicious cycle that spurs inefficient vehicle growth will continue.

Fortunately, the Asian Development Bank and other multilateral organizations seem to have finally understood that money alone does not buy sustainable transport: the political will must be there to enact strong policies, as the ADB and World Bank have recently said strongly. Moreover, civic and business groups have also called for more sustainable transport policies. In Manila, the Clean Air Initiative Asia has organized various actions, and called for stronger environmental standards in every Asian country and all major urban areas. In individual countries, civic groups such as the Pune Transport and Traffic Forum or EMBARQ in India, Pelangi in Indonesia or the Energy Foundation in China have sprung up to mobilize a wide group of stakeholders in the debate over transport policy. Some multinational oil and auto companies, meanwhile, have seen the writing on the wall and have begun supporting cleaner vehicles and fuels. Bus manufacturers are bringing out affordable hybrid buses that both cut local pollution and use less fuel, thus reducing CO₂ emissions. In other words, the ingredients for sustainable transport are in place in many Asian nations and cities.

Will leaders steer a new course? It is unclear. The high end of my own previous projections for car ownership in China actually underestimated 2010 ownership, while the introduction of the Nano in India appears poised to boost an already high growth-rate of cars. But the determination of the Chinese government to act locally, as well as the efforts in India by the Jawaharlal Nehru Urban Renewal Mission’s national fund for better urban transport, suggests more leaders are seeing the successes of places like Seoul as a good sign. A billboard I saw by the SkyTrain path in Bangkok advertising a huge new apartment building, boasted of its location “along the sky train.” That tells me that the interests that control land use and urban sprawl have begun to get the message.

Our role as “experts” remains the same. We should not say what is “right” for others, but help them sort out the consequences of their own choices. We need to help Asian leaders plan for better “choices” than what is currently on offer. This can help leaders change course by uncovering what their people really want and are willing to pay for. The challenge really is one of leading and making decisions. The rest is easy.

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