

Environmental Footprints, Economic Advancement and Sustainable Urban Mobility

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The rapid economic development in Asian countries has been associated with growing motorization, industrialization, urbanization and increased energy consumption. These processes, happening all at the same time in Asia, have resulted inevitably in a corresponding pressure on urban environmental systems, including greenhouse gas emissions and urban air quality.

The infamous London smog of 1952 is probably the most notable example of how industrialization activities and energy use take a toll on the quality of air we breathe. It is a strong characteristic of an era where protection of the environment takes a backseat to economic growth. Experiences in present-day London suggest, however, that increased economic development can also translate to an increased capacity to address pressures on environmental systems. London's Congestion Charging scheme, for instance, required some US\$488 million in upfront capital investment to address the growing traffic problem. According to the Institute for Transportation and Development Policy (ITDP), this intervention cut traffic levels in Central London by 15% and delays by 20%, while increasing bus speeds by 20% and the number of annual bus passengers by 7%.¹

A study benchmarking the air quality management capability of some 20 Asian cities showed that cities with high levels of economic development tend to have well-developed management capabilities to minimize air pollution,² with Hong Kong, Singapore, Taipei, China and Tokyo distinguished as the most excellent examples. Notably, these cities had the capacity to apply high technology to the problem, which subsequently resulted in low air pollution. This enhanced the quality of life of their people while advancing the goals of economic development.

Metro Manila, the Philippine mega-city where I live, falls somewhere in the middle of the spectrum of the 20 Asian cities studied for air quality management capacity. This means that the country has developed systematic air quality management procedures, which have resulted in a progressive decrease in air pollution from previously high levels.

The good news is that we have been able to put the policy and institutional framework in place to promote the right of the Filipino people to breathe clean air since the enactment of the Philippine Clean Air Act in 1999. The bad news is that we are not quite there yet in terms of meeting either the standards set by national laws or the World Health Organization's (WHO) guideline values. Some of the major setbacks to alleviating the problem of air pollution in the Philippines include weak institutional capacity, poorly enforced laws and inadequate investment in infrastructure.

In the meantime, air pollution continues to pose a big threat to the health and productivity of people living in Manila. Traffic congestion and smoke-belching buses carrying 2.34 million passengers on EDSA, the 12-lane principal circumferential highway in Metro Manila,

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¹ Hook, Walter and Eric Ferreira. 2002. Congestion Charging: Can it Work in Sao Paulo? *Sustainable Transport* (Winter 2004): 12-15. Available: <http://www.itdp.org/ST/ST16/ST16.pdf>

² Schwela, Dieter, Gary Haq, Cornie Huizenga, Wha-Jin Han, Herbert Fabian, and May Ajero. 2006 *Urban Air Pollution in Asian Cities*. London, UK: Earthscan.

are the most prominent and visible reminders of the need to manage air quality. To tag a price, economists have estimated that the annual economic loss due to traffic congestion in Metro Manila is approximately US\$2.8 billion.³ The World Bank has estimated that in Manila, the annual economic loss from the effect of air pollution on health and productivity is US\$392 million.⁴ Compounding the problem of traffic congestion and air pollution is the noted increase in vehicle ownership in the Philippines. On average, 50,000 additional vehicles are registered each year. In 2006, a total of 5,059,753 vehicles were registered,⁵ with roughly 35% of that figure in Metro Manila.⁶ Combined with the equally large population of public utility vehicles, imagine how much traffic and emissions Metro Manila is forced to accommodate in its streets.

This trend of rising numbers of motor vehicles due to growing transport and economic demand is representative of the Asian situation. We see generally increasing demands for energy consumption, electricity generation, oil and coal consumption, and motorization, all of which are used for activities that push economic advancement but contribute to both the regional air pollution problem and the global warming phenomenon at the same time. In fact, the Intergovernmental Panel on Climate Change concluded in its 2001 assessment that “an increasing body of observations gives a collective picture of a warming world and other changes in the climate system”⁷ and “the balance of evidence suggests a discernible human influence on the global climate.”⁸ Clearly, the factor primarily responsible for climatic changes comes from anthropogenic greenhouse gases through fuel combustion, including the millions of private cars and public vehicles being registered every year.

Thankfully, the Philippine government shifted its paradigm from the traditional “road investment=economic development” to a more progressive mindset of improving infrastructure that encourages sustainable mobility of goods and people. The two million cars in Metro Manila transport only about 20% of the population,⁹ hence building more roads was an imprudent use of resources, while the introduction of the rail transit network was not.

The EDSA Metro Rail Transit (MRT) system is designed to carry 23,000 passengers per hour per direction, initially, and is expandable to accommodate 48,000 passengers per hour, per direction. It is a strategy that aims to alleviate the chronic traffic congestion experienced along the EDSA corridor, manage air quality, and reduce carbon dioxide emissions (hence, mitigate climate change) offset by private vehicles owners opting to use the public transportation system.

³ Bas, Rene Q. 2006. Our Traffic Mess costs P140B. *The Manila Times*. 20 August. Available: <http://www.manilatimes.net/national/2006/aug/20/yehey/main.html>

⁴ The World Bank. 2002. *Philippines Environment Monitor*. Available: <http://siteresources.worldbank.org/INTEASTASIAPACIFIC/Resources/Philippines2002.pdf>

⁵ Republic of the Philippines. Department of Transportation and Communications. Land Transportation Office. 2006. *Number of Motor Vehicles Registered by Classification and Mode of Registration*. Available: <http://www.lto.gov.ph/stats2005annual/MVRegisteredBYClassCY200320042005.htm>

⁶ Republic of the Philippines. Department of Transportation and Communications. Land Transportation Office. 2006. *Number of Motor Vehicles Registered, New-Renewal, By Region, By Classification & Type of MV. Annual 2005*. Available: <http://www.lto.gov.ph/stats2005annual/MVDenAll.htm>

⁷ Intergovernmental Panel on Climate Change. 2001. *Third Assessment Report: Climate Change 2001. Synthesis Report*. Available: <http://www.ipcc.ch/pub/un/syrenq/spm.pdf>

⁸ Intergovernmental Panel on Climate Change. 2001. *Third Assessment Report: Climate Change 2001: Impacts, Adaptation, and Vulnerability*. Available: http://www.grida.no/climate/ipcc_tar/wg2/059.htm

⁹ Republic of the Philippines. Department of Transportation and Communication. 1998. *A Factbook on Metro Manila's Transportation and Traffic Situation. Prepared by MMUTIS Study Team*. Manila, Philippines. The Metro Manila Urban Transportation Integration Study (MMUTIS) shows that in 1996, around 78% of the 23.7 million motorized person trips in a typical day in Metro Manila uses public transportation.

Due to financial constraints, however, the rail transport system within Metro Manila has not been built to cover the whole stretch of the thoroughfare being traversed. While EDSA is about 54 kilometers long, the MRT line is only 16.8 kilometers. As a result, many commuters who ride the rail-based system are compelled to take other forms of fuel-based public transport such as buses, jeepneys, FX taxis, and even tricycles, just to get to and away from a MRT station. The surrounding structure of the MRT station does not encourage non-motorized transportation either, since ample pedestrian walkways, bike lanes and bike parking areas are visibly lacking. The drawback of a transportation system that is not fully integrated is that traffic congestion and its ancillary results remain a problem.

Nonetheless, taking into account the millions of passengers along EDSA daily, having this mass transport facility is a welcome respite. It enables the moving of a greater number of people more efficiently¹⁰ (lesser travel time promoting more economic activity) with fewer emissions, which ultimately adds up to better quality of life for all.

One advantage of being a developing country, perhaps, is that the learning curve is not as steep as it was for industrialized countries. We are slowly learning that an efficient and reliable public transport system is a key ingredient to promoting environmental sustainability and economic advancement. The development path further suggests that adopting a co-benefits strategy that combines and integrates urban air quality management with climate change mitigation measures gives greater results than if those objectives were pursued separately. Bogota, Colombia proved this to be true when the Executive Board of the United Nations Clean Development Mechanism approved for the first time a methodology for transport projects¹¹ following their TransMilenio SA example.

Indeed, urban air pollution and climate change have many common causes and often require similar management and mitigation strategies. Having a good, efficient and sustainable transportation system provides a good avenue for addressing those global issues. More importantly, it is where economics and environment definitely go together as the relationship between continuing economic growth and travel demand is acknowledged. As compared to private vehicle travel, public transport is much more efficient on a per-kilometer basis. Hence, before our car causes another drought, hurricane, glacier-melt, or case of lung cancer, like the proverbial butterfly that flapped its wings in Beijing and caused a tornado in Oklahoma, it is always good to explore the potential of sustainable mobility.

In addition, developing sustainable forms of transport contributes to realizing the Millennium Development Goals (MDGs) set by the United Nations by providing accessibility to people at minimal cost. While it may not have been emphasized in the MDGs, interventions from the transport sector are instrumental in achieving most of the targets by 2015.

Making non-motorized transport modes available benefit the poor sector most. Providing good walking facilities and biking infrastructure make it possible for people to make short trips practically for free.¹² Without such facilities, poor people are forced to use more expensive motorized modes, such as the popular but grossly polluting 2- and 3-wheelers, which drive up their cost of living and also the cost of goods and services.

¹⁰ Republic of the Philippines. Department of Transportation and Communications. Statistics of Daily Average Ridership. Available: <http://www.dotcmrt3.gov.ph/Statistics.htm>

¹¹ United Nations Framework Convention on Climate Change. CDM: Approved Baseline and Monitoring Methodologies. Available: <http://cdm.unfccc.int/methodologies/PAMethodologies/approved.html>

¹² Hook, Walter. 2006. Urban Transportation and the Millennium Development Goals. *Global Urban Development 2* (March).

A free-for-all road like EDSA can move perhaps 3,000 to 4,000 passengers per lane per direction. Once the peak hours hit and roads become congested, there is an increase in travel costs, such as fuel consumption and health and productivity impacts. An exclusive bus lane, in very specific operating conditions, can move up to 20,000 passengers per direction per peak hour and enable buses to maintain speeds of up to 27 kilometers per hour. Hence, the introduction of exclusive bus facilities on an existing right-of-way can significantly improve the targeting of that road asset to the benefit of the poor (footnote 12).

This alternative mass transit mode, as used in Bogota, is more popularly known as the Bus Rapid Transit (BRT) system. It is a bus-based transit system that imitates the speed and performance of a rail system through exclusive right-of-way lanes. The greatest advantage of establishing a BRT over railways is the cost.¹³ Aside from the high cost of building and maintaining a rail-based system, considerable attention must also be given to the operational cost it entails. The 16.8 kilometer-EDSA MRT, for instance, is subsidized by the Government at US\$7.5 billion annually.¹⁴

For US\$1 billion it is possible to establish 7 kilometers of subway or 14 kilometers of elevated rail or 426 kilometers of BRT.¹⁵ If the BRT concept had been adopted in Metro Manila instead of the MRT, the mass transport system would have reached nearby provinces with the same budget, which would have created compact suburban areas and decongested the city further.

Sustainable mobility provides the opportunity for economic advancement through the establishment of viable long-term infrastructure and expansion of public transport modes. Half of the effort, as the other Asian cities with low air pollution have demonstrated, may have to come from technological improvements, whether from fuels, vehicles, engines or infrastructure, and be achieved within a certain degree of economic power.

Providing the right climate for a supportive investment framework and enabling policies for sustainable urban mobility will have a profound effect on the control of global greenhouse gases and air pollutants from vehicle emissions, while also paving the way for lighter environmental footprints and stronger economic development.

¹³ Limanond, Thirayoot and Carlos F. Pardo. 2006. *Mass Rapid Transit Options*. 28 August. Available: http://www.sutp.org/index.php?option=com_content&task=blogcategory&id=15&Itemid=48&lang=en

¹⁴ Araneta, Sandy. 2005. DOTC: MRT fare could increase by P10 in 2006. *The Philippine Star*. 21 October. Available: http://www.dotc.gov.ph/2005_articles/sept_oct/oct21.htm

¹⁵ Wright, Lloyd. 2005. *Proceedings of Moving Forward: Bus Rapid Transit Training Workshop for Metro Manila*. Manila, Philippines. November.