

Infrastructure, Government and Utilities

The case for PPPs in urban transportation



There is a strong case for public-private-partnerships in urban transportation projects, writes Andrew Chan Yik Hong, a PricewaterhouseCoopers executive director in corporate finance leading its infrastructure, government and utilities practices in Malaysia, Thailand, Vietnam, Cambodia and Laos.

This article was published in the Vietnam Investment Review – English Weekly 27 July 2009.

Urban transportation projects generate multiple benefits ranging from pure private good to public good. The beneficiaries for each category are also different.

There is a strong case for public-private-partnership (PPP) in capturing the value of urban transportation projects that accrues to all categories of beneficiaries.

Public institutions need to develop innovative instruments that capture value from indirect and proximity beneficiaries so that urban transportation projects do not excessively rely on real-estate development for financing.



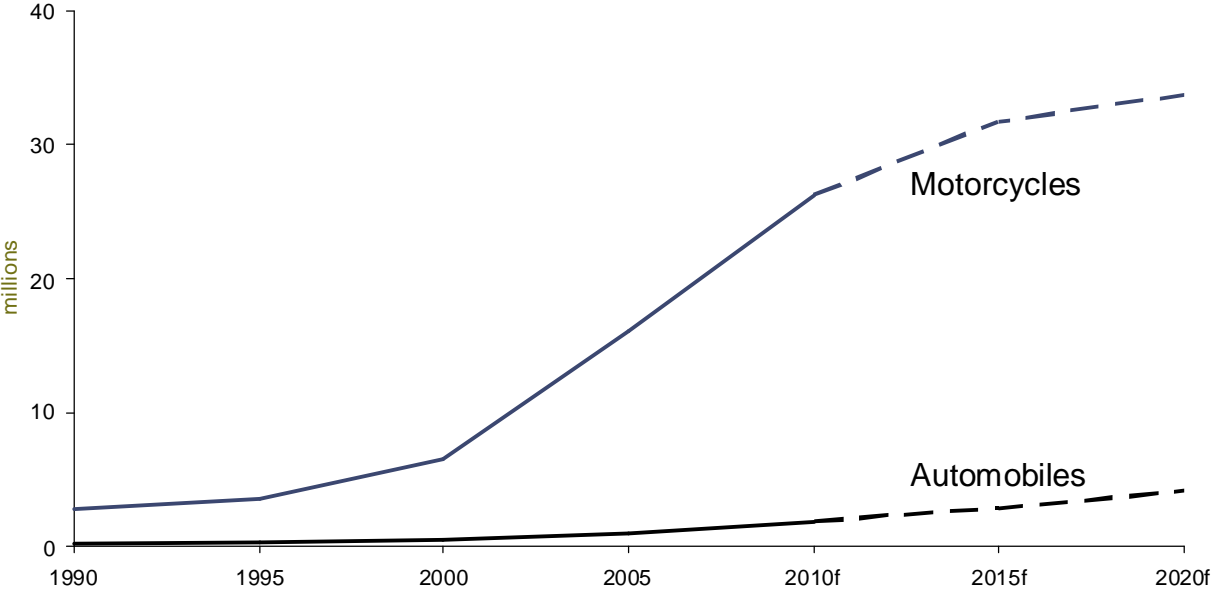
The urban population in Vietnam has crossed 26 million and is estimated to grow to 68 million by 2050. With urban areas contributing over 70% of Vietnam's Gross Domestic Product (GDP), sustained long-term GDP growth critically hinges on making basic services available in urban areas.

Urban mobility or transportation is one such basic requirement. Ensuring smooth and efficient movement of people and goods in urban areas has direct economic benefits and enhances productivity of workers. The availability of good and efficient transportation services at affordable costs also enhances the quality of life of residents. The importance of public transportation has also come under increased focus due to the contribution of vehicular pollution to climate change and deteriorating air quality and its impact on health.



Vietnam has the highest motorbike ownership per capita in the world and is experiencing exponential growth in motorbike ownership. Over the past decade, people have rapidly switched from bicycles to motorbikes. Now, people in the large cities are beginning to move to automobile ownership. In general, car ownership rapidly increases when GDP per capita approaches US\$1,000. In China, car ownership tripled between 1995 and 2005 when GDP per capita increased from USD1,040 to USD3,160. As by now GDP per capita is near USD 1,000, a rapid increase in car ownership will be seen in Vietnam. It is expected that two-wheeler population will double between 2005 and 2020, while the number of cars will quadruple. Bringing a shift in commuter preference from private transport vehicles to use of public transport is at the core of sustainable urban transport.

Growth of private vehicles in Vietnam



Source: Vietnam Development Forum
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Diversity of urban transport project beneficiaries

Developing a sustainable and affordable public transportation solution results in benefits for a wide set of stakeholders. We can categorise them broadly into three groups depending upon the extent of direct use benefit and the extent to which they contribute to the project.

- **Direct-use beneficiaries** includes commuters who will use the transport services, businesses using benefit from the assets created, and advertisers who may be able to generate revenue by utilising the space on rolling stock, stations, bus stops etc.
- **Proximity beneficiaries** are those businesses along or close to the corridor along which the public transportation system will operate. They benefit from increase in customer flow and business activity. Value of land and property owned by residents in these areas will also appreciate due to the better transportation linkages.
- **Indirect beneficiaries** include all other road users who experience less congestion on the roads due to other users using the public transport. Indirect benefits also include improvement in air quality, availability of more public space, and reduction in use of fossil fuels and the concomitant impact on environment throughout the city.

As one proceeds from direct-use to proximate and indirect use benefits, the outputs/ services transform from strictly private goods to public goods. Quite often, excessive emphasis is laid on financing the project largely through direct use benefits, viz., user charges, advertising rights etc. The need to keep public transport affordable to the poor results in charges being made so low, that even recurring expenses are not met. Currently, there are very limited tools and instruments available for deriving value from proximate benefits. The administrative and implementation needs for capturing these values will be substantial. There are hardly any instruments, even at a conceptual level for making indirect beneficiaries pay for the benefits received from public transport. It is also useful to note that the value of proximate and indirect benefits is also nebulous and would involve certain degree of subjectivity.

Urban transportation projects, such as metro rail, are highly capital intensive with capital cost of more than US\$30million per km of network. The latest urban development masterplans for Hanoi and Ho Chi Minh City estimates an investment of US\$28 billion is required to meet the transport needs of both cities by 2020. In the absence of suitable tools to realise value from beneficiaries other than direct-use beneficiaries, there is little option but to fund such projects through support from the government.

In light of the above discussion, two important questions emerge:

- a. What types of instruments are necessary for capturing part of the value that accrues to different sets of beneficiaries?
- b. Which is the most suitable institution or entity that should be tasked with implementing each of the instruments?

The project developer is ideally placed to recover fare box collections, advertising revenues, and license fee from various types of direct-use beneficiaries. Even real estate development along the corridor can be undertaken by the project developer. Since other benefits more closely resemble public good, there is a definite role for public institutions to apply different types of tax and non-tax instruments. Therefore, there is a strong case for public-private-partnerships (PPP) for urban transportation project with an active role for the public institution.

In most cases, governments at all levels have given little thought to using such instruments for project-based financing. As a result, quite a substantial portion of the capital cost, and even recurring costs in many cases, is met through budgetary support from government.

Rethinking urban transportation finance

It is necessary to consider urban transportation financing as part of a comprehensive framework which captures the variety of benefits that accrue to different forms of beneficiaries rather than in the narrow sense of financing a metro rail, bus rapid transit system, or urban road network.

Urban transportation financing should seek to achieve the following objectives:

- Maximise the social-economic benefits to the society through implementation of the most cost-effective option for urban transportation
- Capture value from direct benefits to project users and as well as value from significant positive externalities that will accrue indirectly from the project
- Ensure affordability of public transportation fares to encourage usage and maximise consumer welfare

It would be necessary to use different policy instruments to attain different objectives. It is difficult to capture the true impact of positive externalities and charge the beneficiaries. Some of the socio-economic benefits are also difficult to value. In the case of PPP projects in urban transportation, private developers may not be able to capture value from proximate and indirect benefits. Therefore, governments provide up-front capital subsidy or grant to private developers to help internalise the value from such externalities.

Conventional instruments for financing urban transportation

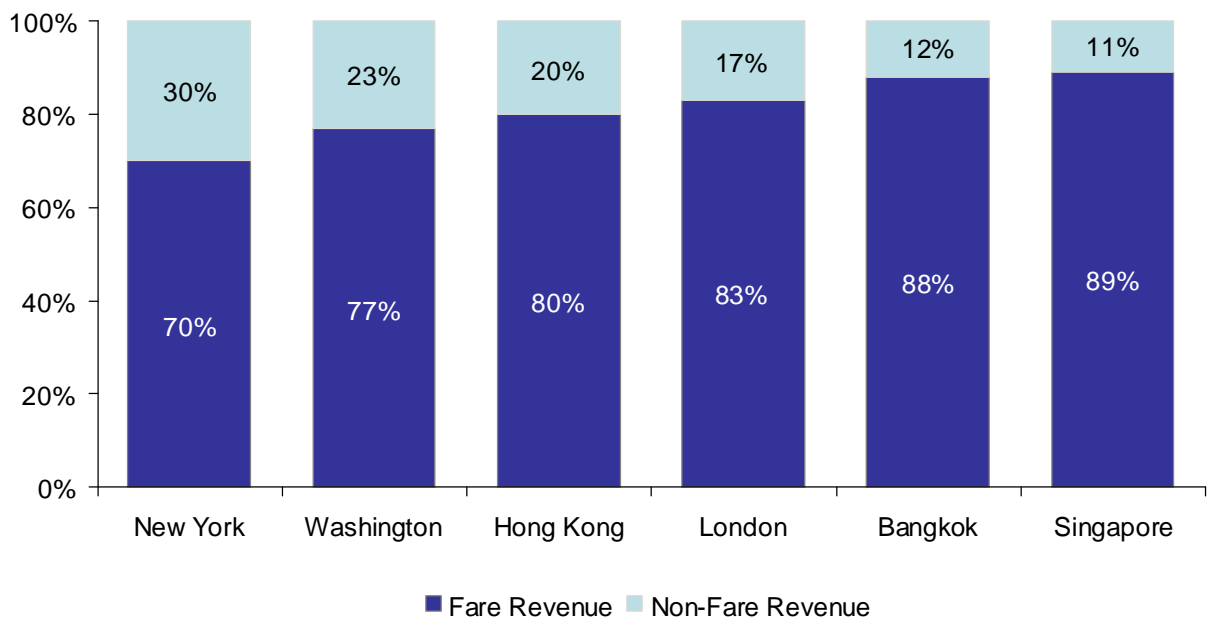
The characteristics of the various types of instruments must be examined to determine its suitability. While the choice seems fairly obvious in case of direct-use benefits, there are a lot of variables that should be closely considered for effectively capturing value from other types of benefits.

- **Fare-box revenues:** Also referred to as user fares, these represent the fee paid by commuters for using the public transport service. There are different decisions to be taken with respect to the fare level, structure and extent of cross-subsidy. Fare-box revenue is likely to be the major source of income for urban transport projects and it is critical to set fares at a suitable level to ensure recovery of costs.
- **Advertising revenue:** The rolling stock consisting of bus and trains is an excellent means for advertising. In addition stations, en-route stops and the corridor also provide ample space for advertisements.
- **License fee from business activities:** The urban transportation project may give rise to a number of business activities. These include development and management of parking areas around stations, food stalls, book-stores, banking services such as ATMs etc. Metro stations provide a captive traffic for such business.

- **Real estate development rights:** The right to develop property at certain points along the corridor and at the stations may be bundled with the urban transportation project to make it viable. However, it depends on availability of government land along the corridor.

While the first three revenue sources are largely targeted towards meeting the operating costs and other overheads, real-estate development is often seen as having the potential to fund the capital expenditure.

Fare and non-fare revenue of metro services around the world (2007)



Source: PwC Analysis

Capturing proximity benefit value

A substantial benefit from a project is the increase in economic activity along the corridor as well as increase in the value of land and real-estate in the proximity of the stations, bus stands and the corridor. There may be multiple instruments that could be used to capture part of this value for funding the project. The choice of instrument and the institution responsible for implementing it would depend upon the following factors:

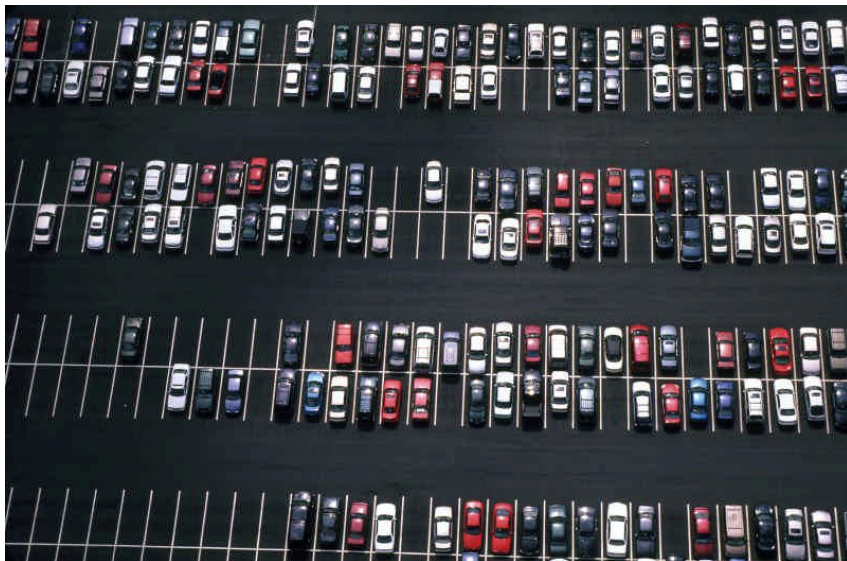
- The demand for commercial and residential real-estate in the proximate area
- Introduction of property tax (or equivalent)
- Institution responsible for city planning and development
- Availability of instruments for managing real-estate development and trading of land use rights (real-estate development rights)

- **Additional Property tax:** The urban transport project is an amenity that will increase the value of land or property near the stations. One option to capture some value from this benefit is to levy a higher rate of property tax on these properties.
- **Betterment levy:** An alternative to higher property tax is to levy a one-time betterment levy on properties in the proximity zone. This option could help generate upfront resources from beneficiaries for part-funding the capital cost.
- **Higher Floor Space Index (FSI):** If the project influence zone is under-developed, the potential to generate revenues from the above tools would be limited. In order to incentivise real-estate development in the project influence zone, a higher FSI may be allowed. Buildings used for commercial purposes may be allowed to increase the built-up area in this zone after paying an up-front fee.

- **Transferable Development Rights (TDRs):** This is a tradable instrument that gives owners the right to a certain quantity of built-up area in another part of the city in lieu of giving away land for social amenities.

For example, Pimpri-Chinchwad, a city in the Indian state of Maharashtra has adopted a number of proximity instruments including TDR, additional property tax and additional building permission fee.

The effectiveness of the above instruments would vary depending upon the local circumstances, scope for real-estate development and densification as well as availability of complementary instruments.



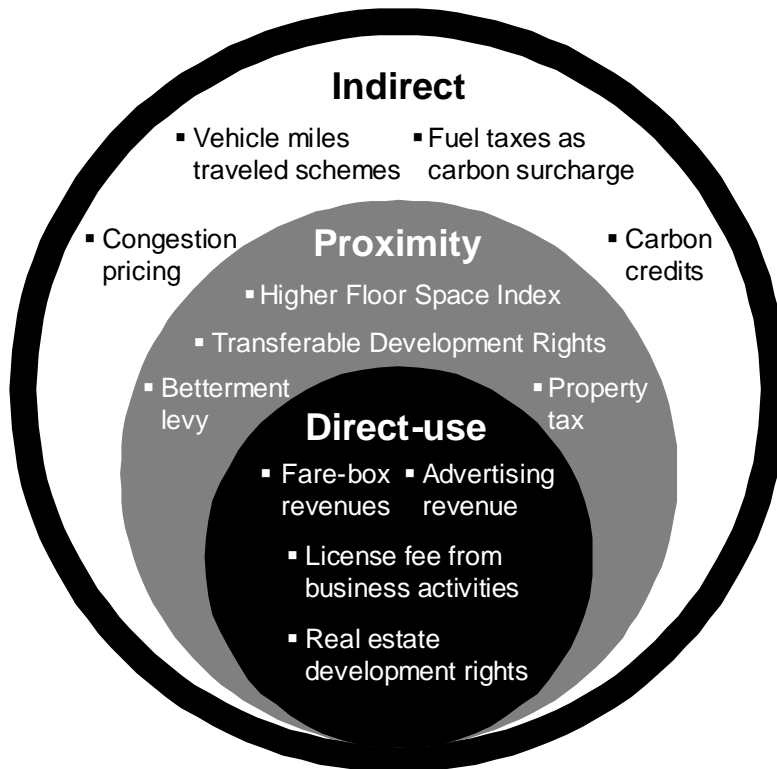
Instruments for indirect benefits value

Indirect benefits are largely public good, and it is also difficult to estimate the value to consumers from such benefits. If more people use public transportation, it reduces road congestion. This benefits existing road users as well through less travel time and more fuel efficiency. An option is to impose a tariff or levy on private vehicle users which reflect the cost of congestion and more fuel usage. The revenues generated from such instruments should be ring-fenced into a separate urban transport fund.

- **Congestion pricing:** Congestion pricing is typically imposed for entry into downtown and business districts or based on the time of the day. Singapore and London are two examples where congestion pricing have been introduced.
- **Fuel taxes as carbon surcharge:** In case congestion pricing is not feasible, a fuel surcharge may be levied to capture the externality cost of use of private transport.
- **Vehicle miles traveled schemes:** Charges would vary based on place, time of day, and type of vehicle. More environmentally friendly cars could be charged less per mile. Driving in rush hour traffic on primary roads could register higher fees. In the United States, Oregon has tested a pilot system in 2007.
- **Carbon credits:** Public transport projects have the benefit of reducing carbon emission by providing a viable alternative to use of private transport. At present developing countries are not mandatorily required to reduce their carbon emission. However, adoption of carbon emission abatement projects in developing countries earns carbon credits that can be used for off-setting emissions by developed economies through the Clean Development Mechanism (CDM) framework. TransMilenio, Bogota, Colombia is the first Bus Rapid Transit project to be successfully registered under CDM for carbon credits.

Policies to influence transportation demand must be considered before turning to increase supply. The United Kingdom has adopted a policy for the past fifteen years of first reducing traffic, then managing it, and only then resorting to capacity expansion. This eases the burden on already strained transportation budgets.

Instruments to capture value from an urban transport project



The formation of a unified urban transport authority would help in realigning the institutional structure to address urban transport related issues in an integrated manner. This authority should have political legitimacy and revenue-raising powers, responsible for determining and implementing strategy and regulating the sector; combined with a mechanism for coordinating and decision-making with other agencies and levels of government.

Despite being a major contributor to economic value generation in urban areas, urban transport has not received serious consideration. Financing urban transportation requirements need to be taken-up as a priority. The future of the country is dependant on the continued progression of metropolitan cities like Hanoi and Ho Chi Minh City.

Andrew welcomes comments and questions at andrew.yh.chan@my.pwc.com.

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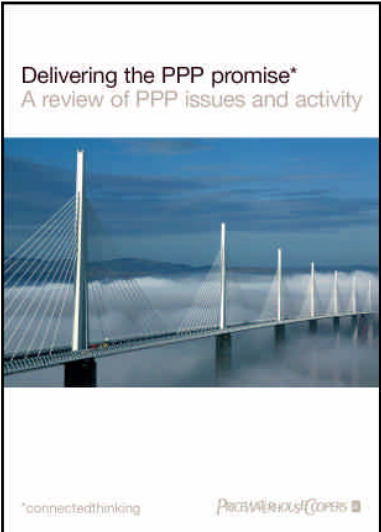
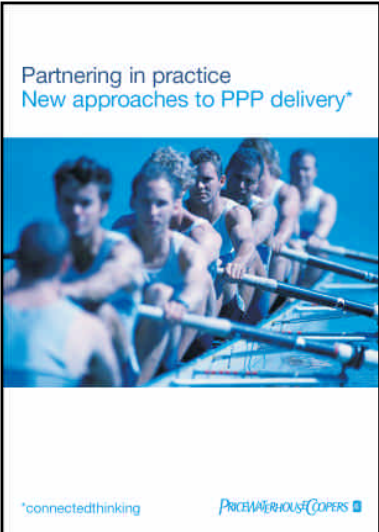
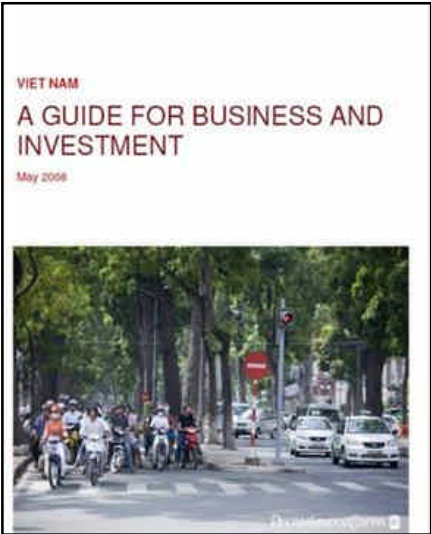
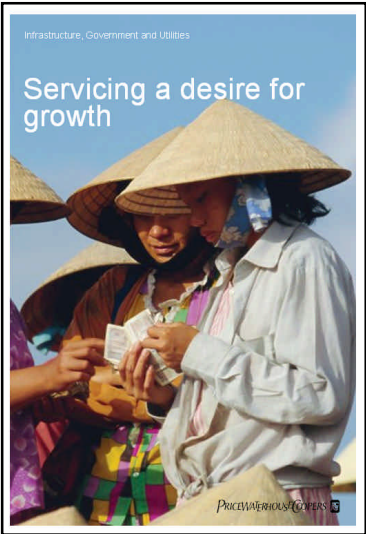
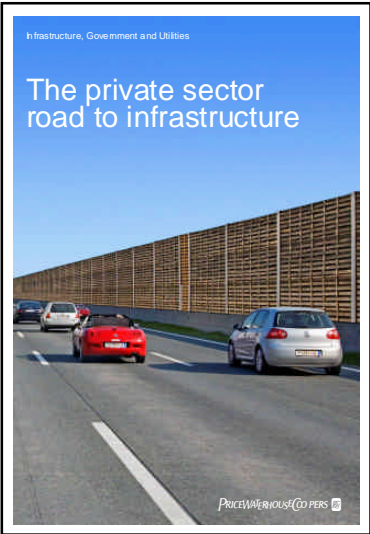
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