

Public and Private Sector Partnerships in Achieving Sustainable Urban Transportation System*

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1. Introduction

Most developing megacities are facing overwhelming congestion and worsening transportation-related environmental problems. The root of those problems is the uncontrolled increase of motorization. By the more apparent impacts of climate change, those cities are, in fact, at the crossroads of choosing between the conventional growth path as developed countries once went through and to pursue a more sustainable path. Similar situation also occurs in the case of medium-sized¹ developing cities. Dimitriou (2006) suggests that if medium-sized cities fail to develop an alternative vision to “trend outcomes”, they will be destined to similar (or a worse) set of lethal forces that have led to the insatiable demand of motorized vehicles in larger cities.

Generally, a sustainable transport system should provide access to people, places, goods, and services in an environmentally responsible, socially acceptable, and economically viable manner where systems perspective, new institutional requirements, and low-cost and incremental innovations become the critical keys (OECD, 2000; Goldman and Gorham, 2006). To achieve that, there are at least two major issues faced by developing cities: (i) increasing motorization, particularly motorcycle due to its affordability and convenience during congested traffic; and (ii) high dependency over road-based inefficient public transport including paratransits. Moreover, in public transport industry, the conflict between private (profit-making) and public (social function and negative externalities) objective is commonly occur.

In managing the conflict, the role of trusting partnerships is increasingly recognized. It is considered representing a more flexible model than franchising in which partnership is more emphasized rather than competition. Bristow et al. (2008) suggests England’s Kickstart and Bus Route Development Grant (BDRG) scheme since 2003 are among the initiatives that appear to have stimulated genuine partnership working whereby operators consider social needs and local authorities take account of commercial require requirements in both cases leading to greater understanding and further encouraged entrepreneurial flair in local authority thinking. Similar approach has also been proposed for Melbourne’s case (Stanley and Hensher, 2008).

This study aims to take lessons-learned from Japanese partnership model for improving bus industry in Indonesian medium-sized cities. In the second sections, it depicts successful collaboration between government and private operators in Matsuyama city in tackling the declining number of population, aging population and adoption of stricter environment standard which have created problematic situation to achieve sustainable urban transportation system. The information was gathered from hearing forum with Matsuyama Municipal Government and Matsuyama major private operator, *Iyo Tetsudo*, in June 2010. The third section describes the scheme and achievements made in Indonesian cities recently to reform urban public transport system. Finally, it draws conclusions on how to achieve an efficient public transport system and possible mechanism for balancing private-public objectives both institutionally and financially.

2. Japanese Model

In 2003, at around 60 percent, Japan’s reliance on cars was relatively low compared to other developed countries (Fujimoto, 2008). Nonetheless, car dependence is high in the smaller regional cities and less urban areas (84%) compared with three major cities – Tokyo (33%), Nagoya (64%), and Osaka (45%) (MLIT, 2006). Extensive railway network may be one of the reasons that those three major cities can achieve high share of railways – Tokyo (61%), Nagoya (30%), and Osaka (45%), whereas outside those cities, the share was only 8 %. On the other hand, bus share was relatively similar in most regions, about 6%.

Since 1992, Japanese bus industry is deregulated. Unfortunately, decline in ridership continued. Despite the decrease in the number of passengers, the number of bus companies has increased since 1985, with most companies entering the market being privately owned. In addition, some larger municipalities operate bus services directly (e.g. Nagoya). National government is also responsible for regulating transport operators to ensure financial and technical competence. However, this culture is slowly changing as bus operators realize that local government is sometimes willing to help subsidize some services and so partnerships are now being established in some areas although officially municipalities can only decide where to site bus stops. Under the Act No. 59 of 2007, Act on Promotion and Restoration of Regional Public Transport, Japanese program for improving bus services consists of nine elements. They are non-step bus, Dual Mode Vehicle (DMV), GuideWay bus, community bus, park-and-ride bus, Public Transportation Priority System (PTPS), terrace-type bus stop, transit mall, and Omnibus Town (MLIT, 2006).

*Keywords: sustainable transport, omnibus town, bus system, developing countries

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¹ Cities with more than a million inhabitants but fewer than 5 million (United Nations, 2008)

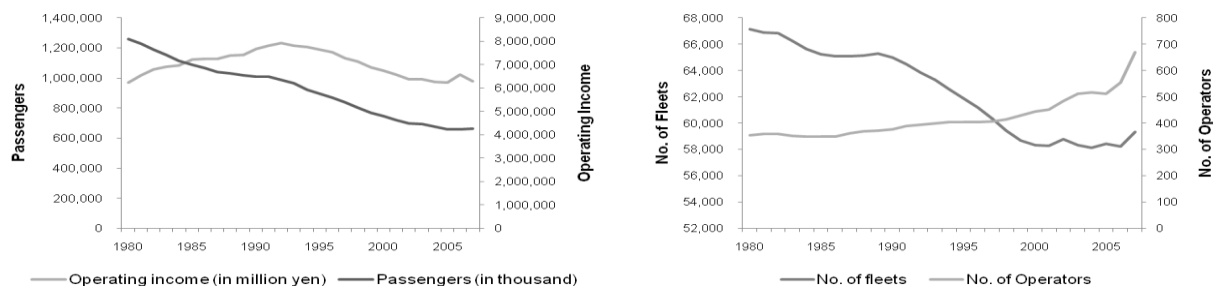


Figure 1: No. of Bus Passengers, Operating Income, No. of Operators and No. of Bus Fleets (NBA, 2009)

2.1 Omnibus Town Subsidy Scheme

Principally, the “Omnibus Town” scheme which was created on May 1997, with the cooperation of three government agencies consisting of Ministry of Transport (MLIT), Ministry of Construction and the National Police Agency includes the implementation of some of the improvement elements listed previously, except DMV and GuideWay Bus. One distinguished feature of “Omnibus Town” is that they are not only improving the bus service itself, but also expected to improve the convenience of transit connections with other modes including coexistence of fixed-route buses with pedestrians (transit mall).

It is aimed for establishing towns featuring buses that everyone can easily use, where people can move around safely, free from congestion and accidents, where people can walk and gather, and which is clean with little exhaust gas in the air. It encourages improvement of bus driving improvement, preparation or improvement of transportation facilities to accommodate bus transportation, improvement of bus convenience, and uplift of social significance of buses. Besides towards local public entities, bus companies are also promoted to provide supplementary supports such as (i) providing a wide range of discount fares or other incentives; (ii) improvement of bus stops, service schedules, information system, ticketing system; and (iii) introducing barrier-free and low-emission bus fleets.

To discuss measures to revitalize the bus system and eventually establish an Omnibus Towns, local voluntary initiative consisting of local public entities, district transportation stations, transportation branch offices, road administrators, prefectural and city governments, police headquarters, prefectural and city government bus associations, are formed. By 2005, there are twelve cities that have been designated as Omnibus Towns: Hamamatsu, Kanazawa, Matsue, Morioka, Kamakura, Kumamoto, Nara, Shizuoka, Sendai, Gifu, Okayama and Matsuyama (MLIT, 2006).

2.2 Matsuyama City Partnership Model

Matsuyama city, Shikoku, located on the western side of the Seto Inland Sea National Park, is a city with 514,784 inhabitants and an area of 428.88 km², about 35% of Shikoku’s total population. Matsuyama plays several functions altogether including administrative, commercial, and education. Matsuyama unique transportation features consist of radial ring road which formed the city skeleton and a circumferential tram/streetcar network with Matsuyama Castle as the center.

Matsuyama does not have its own transportation department. Consequently, public transportations including bus and train were mainly provided and operated by Iyo Railway Company (*Iyo Tetsudo*). However, the share of public transport in Matsuyama City is decreasing from 10.1% in 1979 to 3.9% in 2000, while car usage increased from 38.7% to 50.5%. Increased motorization, city expansion, aging society and the decline of urban land area became the motivation for the city to make efforts to sustain its future development.

Therefore, the city further develops public transport as well as cyclist and pedestrian friendly oriented urban planning concept. Starting from 2000, the collaboration between Matsuyama Municipal Government and *Iyo Tetsudo*, began. This collaboration departed from an aim to convert the access to city center from using motorized transportation to walking, bicycle, and public transport by emphasizing on “walking as a lifestyle” within the urban planning concept. Several initiatives, starting from explanation to the citizens, collaborative work as well as council was held between the private operators were among the actions that have taken place.

Further, Matsuyama became the 12th city in the country in March 30, 2005, designated as an omnibus town. The “Matsuyama Omnibus Town” or MOT plan is not only focusing on bus improvement but also establishing a comprehensive transportation system integrating bus with other existing modes and also the urban structure. It includes:

- (i) Increasing the convenience and safety of bus by introducing contactless IC bus cards; bus location system and real-time arrival/departure time which can be seen at a glance; operate non-step and low-emission (CNG) buses. To date, 37% buses have been changed into non-step bus from 57% planned within the next five years. In addition, by introducing 8 fleets of eco-friendly buses, it is expected that 4% of CO₂ emission reduction can be obtained.
- (ii) Improving the accessibility of bus service by introducing cycle-and-ride, park-and-ride, high-grade bus shelter, and providing circular/loop bus services. *Iyo Tetsudo* revitalizes three stations with some barrier-free measures and/or operates circular or loop buses connecting residential areas and some public facilities (e.g. hospital) with the nearest station². The records show that the number of passengers per day has been increasing since those measures were adopted.
- (iii) Improving the smoothness of bus operation by introducing of Public Transport Priority System (PTPS), improve road infrastructure particularly the intersections, and develop transit malls. It is also aimed for maximizing the attractiveness of

² Komachi station (barrier-free measures and new condominium), Yogo station (loop feeder bus) and Umemoto station (opening of new hospital and loop-bus).

bus system through cooperation with commuter train and municipal train services. Unlike other cities where PTPS is employed in almost the entire city, Matsuyama only employed PTPS for one bus route from Okaido to Morimatsu, about 5.7 km long. The average travel time is about 35 minutes. Despite a report claiming that PTPS has been able to save about 5 minutes travel time³, according to Hashizume (2008) and field observation, it is not effective.

At this moment, various areas were able to be improved and expanded through this program, particularly within city center area such as the bazaar leading to the entrance of Matsuyama Castle called as “the Ropeway Street” and the area around Dogo Hot Spring. Both locations are historical sites which serve as the major tourist attraction of the city. The annual number of *Iyo Tetsudo* bus passengers has also started to pick up from 5,987,000 in 2000 to 8,918,000 in 2008, although it was still 80% less than the peak during bubble period.

Despite the successful achievements, due to external factors, such as fuel price change and economic downturn, financial difficulties are unavoidable. So far, all infrastructures are subsidized by the government, particularly from the omnibus town subsidy scheme, while operational costs are covered by fare-box revenue and other businesses of the operator company. Although, cutting unprofitable routes can be the simplest solution to take, the operator realized that all routes are significant in network point of view. Thus, more supports in form of operational subsidy especially for unprofitable routes and collaboration with the authorities in managing the traffic are considered essential for further improvement.

3. Bus Industry in Indonesian Medium-sized Cities: Bogor and Yogyakarta, Indonesia

The new Traffic Law No. 22/2009 mandated government including local government to provide a standardized public transportation adopting competitive tendering system in selecting the private operators. Initially, it is expected to establish a mutual commitment and financial sharing scheme between central and local government. The new traffic law emphasize on the cooperation between central and local government where the central government provides technical assistance and supervision from formulating local transportation master plan, establishing binding commitment between both parties, planning infrastructure detailed engineering design and implementing the plan under financial sharing scheme. Local government is responsible for the provision of public transport network and bears all the risks. Private operators are selected through competitive tendering and licenses are awarded based on quality licensing. The fare is determined by the government through Public Service Obligation (PSO) formula based on minimal service standards.

Accordingly, as pilot, Ministry of Transportation (MoT) promotes service-based bus transit system and provides technical assistance to 20 cities by 2014 in developing the bus system to reduce congestion, traffic emissions and address energy conservation. MoT provides buses and coaching during implementation to priority cities (CAI-Asia, 2009). The program is aimed at: (i) replacing *angkot*, a van-type passenger bus with a higher capacity bus system operating on a segregated lane; (ii) gradually reducing the number of *angkot* in each city and restructuring the route to avoid overlapping with the new bus system.

Among the cities, this paper highlights two medium-sized cities, Bogor and Yogyakarta. Bogor has 3,414 units of *angkot* operating on 23 routes and, thus, considering the city size, it is known as a city with million *angkot*. Meanwhile, Yogyakarta’s traffic is dominated by motorcycle reaching nearly 48% in 2004. On the other hand, the performance of public transport was getting worse with average load factor only 27.22% (2004). The following table shows the characteristics of new bus systems in Bogor and Yogyakarta. Table 1 summarizes the characteristics of new bus system in both cities.

Table 1: Characteristics of New Bus System in Bogor and Yogyakarta

CHARACTERISTICS	BOGOR	YOGYAKARTA
System Name	TransPakuan	TransJogja
Established Year	2005	2008
Company	PD Jasa Transportasi (government-owned company)	PT Jogja Tugu Trans (consortium of land transport operators)
Fare	IDR 3,000	IDR 1,000
No. of Routes	3	3 (plus two shuttle routes)
No. of Fleets	30	54
Capacity	26 passengers	41 passengers
No. of Shelters per Km	1.06 (49 shelters: portable, open, closed-type shelters)	0.35 (76 shelters)
Ticketing System	Manual ticketing system inside shelter due to technical problem of smart card implementation	Electronic ticketing machine inside shelter
System Length	28.5 km	33-36 km
No. of Pax/Day/Bus	168	278
No. of Staffs per Bus	1:5 (operational staff)	1:20 (118 drivers, 118 conductors, 570 shelter staffs)
Load Factor	Corridor 1: 85.41%; Corridor 2: 3.57%	42% (per segment)
Headway	8-60 mins	14 mins
Bus Replacement Ratio	1:3 (aiming at replace 1,376 <i>angkot</i> into 459 buses by 2015)	1:2
Supporting Facilities	Amenities at some shelters	Park-and-Ride facilities at two points
Financial Performance	2007-2008: Fare-box revenue > direct operational cost (10 fleets); 2009: Direct operational cost is slightly higher than revenue due to high depreciation cost for 30 fleets	2008-2010: Cost > Revenue (subsidized) → high cost for shelter’s personnel

³ Source: http://www.chiiki-dukuri-hyakka.or.jp/1_all/jirei/2007_tosikinou/honpen/40jirei_13.html

CHARACTERISTICS	BOGOR	YOGYAKARTA
Major Challenges	<ul style="list-style-type: none"> • Too many <i>angkot</i> from surrounding districts entering the city. • High social impact of shelter placement 	People's rejection over shelter location
Planned Strategies	<ul style="list-style-type: none"> • Optimize the routes • Applying shift method for <i>angkot</i> operations • Developing city-border terminal • Limiting <i>angkot</i> fleet maximum age • Accelerating the restructuring of <i>angkot</i> route from main to branch trajectories • Adopting operational cooperation scheme with <i>angkot</i> operators 	<ul style="list-style-type: none"> • Adding two new routes and optimize the system • Develop more shelters including portable shelter and increase the capacity of some existing shelters • Equipped several buses with bike -rack • Ticket machine on bus with GPS to reduce shelter personnel • Improve multimodal integration

Source: TransPakuan and TransJogja operational report presented at Sustainable Urban Transportation Improvement Project evaluation workshop organized by German Technical Cooperation (GTZ), Nikko Hotel, Jakarta, 22 April 2010; <http://www.sutip.org/>.

The pilot arranged by MoT is basically a stimulus for local government to further expand and integrate the bus system with other modes by referring to transportation master plan agreed in the first place. Unfortunately, at the beginning, the systems are often less attractive than expected due to limited coverage of the network and delayed use of electronic ticketing system. Generally, the main problems lie on high social impacts of land acquisition for shelters and time-consuming process for approaching the *angkot* or public transport incumbents. As for the shelter, portable, and mobile shelter becomes the alternatives whereas for the incumbents, a more attractive operational cooperation scheme is unquestionably required.

4. Conclusions

Japanese omnibus town scheme and Matsuyama city's model represent quality partnerships where local stakeholders decide to input measures at specific sites, along routes/corridors and/or across the network which is similar to England. Both models do offer a more attractive bus service for users, however, they are not achieving significant modal shift to reduce or prevent motorization growth. Davidson and Knowles (2006) concludes that the main reason for this is the lack of awareness and misconceptions of what the partnership scheme has to offer due to ineffective marketing and an uninterested target group. To prevent lingering unsupportive sentiments from citizens and incumbents causing significant delays in the process of optimizing the system, an atmosphere to promote partnerships needs to be created so that a genuine partnership between the government, new bus operators, incumbents and citizens can be developed along the move towards controlled competition regime in Indonesian cities.

However, the problems in Indonesian cities as well as in most developing countries, the number of private operators to be involved is much larger. Thus, the degree of flexibility experienced in Japan and England may not work. Sohail et al. (2006) revealed that fleet owners, employees' association and cooperatives can play an important role through self regulation in addition to formal regulation that bind not only among multilevel authorities but also the new and incumbent operators.

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