DO PRACTICES CORRESPOND TO POLICIES IN SOLVING BANGKOK TRAFFIC GRIDLOCK?

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abstract: This paper points out the discrepancies between the policy and the actual practice in tackling traffic problems in Bangkok. Policies for solving traffic gridlock from the 5th National Economic and Social Development Plan (5th Plan: 1982-1986) up to the present national development plan (7th Plan: 1992-1996) were evaluated to see how the government has realized the importance of public transport rather than private transport. However, in actual practice, several transport projects still encourage the use of private transport. Possible sources of funds, in addition to general revenue taxes, tolls and fares, are proposed to be used for the implementation and operation of transport projects. The interaction among transport planners, administrators and politicians is one of the major factors to be improved in order to facilitate and stimulate the development of transport facilities.

1. INTRODUCTION

How to survive in Bangkok traffic over the next few years is one of the hot issues being discussed by all road users. The severity of traffic gridlock in Bangkok is widely known not only in Thailand but also overseas. A number of transport studies have been carried out and various traffic counter-measures have been introduced. In addition, seminars, conferences, workshops and other brainstorming sessions are frequently held. With such extreme efforts exerted in fighting the traffic war, why is Bangkok traffic still in a "critical" state? To answer this question potential causes should be analyzed, such as: poor planning?; lack of master plans?; political problems?; financial problems?, etc. Although it is interesting to note that Bangkok's economy is not worse than that of some other cities in which mass rapid Transit (MRT) systems have already been implemented and serving traffic demand for a number of years, the question must be asked, Why doesn't Bangkok have an MRT system?

2. BANGKOK TRANSPORT STUDIES

The first comprehensive transport study for Bangkok was carried out over 1971-1976. This study proposed worthwhile transport policies for the Greater Bangkok Area. The significant proposals were: (1) to encourage the use of public transport; (2) to develop mass transit and expressway systems; and (3) to restrain the use of private transport. The development of mass transit and expressway systems was proposed based on "pro public" and "pro private" policies. According to this proposal, by 1990 an MRT system should have been operational with total lengths of approximately 110 km and 69 km, for "pro public" and "pro private" policies, respectively. However, at present (1995), only an expressway of 47 km has been materialized. And, although the first MRT system for Bangkok is under construction, it will take at least three more years before it is completed.

After the first comprehensive transport study in Thailand, several other transport studies were undertaken, such as feasibility studies of expressways, MRTs and traffic management

measures. In addition, a study of transport policy advice is carried out every five years in order to be incorporated into the National Five Year Plan.

In 1985, the Metropolitan Bangkok Short Term Urban Transport Review (STTR) was undertaken to provide transport policies for the Sixth National Economic and Social Development Plan (6th Plan: 1987-1991). The recommendations of this study included: (1) to encourage the use of public transport; (2) to connect the "missing links" and to develop secondary roads for serving traffic to/from the expressways; and (3) to develop appropriate financing schemes.

The Seventh Plan Urban & Regional Transport (SPURT) was carried out in 1990 to prepare transport policies for the 7th Plan, (1992-1996). The main issues addressed in SPURT were: (1) strategic investment for transport infrastructure; (2) pros and cons of concessionaire financing; (3) management of environmental impacts resulting from traffic; (4) strengthening the development of the Bangkok Metropolitan Region (BMR) with an appropriate transport network; and (5) giving priority to public transport. SPURT pointed out because of the adverse effects on the urban structure due to traffic congestion "People will increasingly take steps to avoid the congestion by establishing jobs in the suburbs or building homes near their jobs in the inner city". This will have the effect of spreading congestion more evenly over a larger area. People will tend to move homes in order to be near their work rather than accept a long commute. The city will become more compartmentalized; i.e. people will tend to confine their activities to one part of the city. Bangkok will cease to be an integrated city and will become a group of smaller "cities".

In conclusion, the government has realized the importance of public transport and has incorporated the policy of "moving passengers" rather than "moving vehicles" into several past National Plans. Undoubtedly, this policy will continue and be incorporated into the next National Plan, 8th Plan (1997-2001).

3. WHAT HAS BEEN DONE?

3.1 Policy and Practice in Solving Traffic Gridlock

As aforementioned, the government has incorporated the policy of providing better public transport services into several National Plans. However, in actual practice, this policy has not been fully implemented. So far, various types of transport projects have been materialized such as roads, expressways and flyovers.

The First Stage Expressway System (FES), with 27 km in length, was completed in 1987. The first and second sections of FES were opened to traffic in 1981 and 1983, respectively. After that, the Ramindra-At Narong Expressway (RAE), the Second Stage Expressway System (SES), the Third Stage Expressway System (TES), and the Fourth Stage Expressway System (FSES) were planned. A portion of SES was constructed and opened to traffic in 1993. Other expressways in the planning stage include an expressway along the Chao Phraya River and the Bang Na-Bang Phli-Bang Pakong Expressway; an extension of FES.

Besides the planning and construction of roads, expressways and flyovers, the government has introduced traffic counter-measures which, in turn, do not support the use of public transport. These measures include: limited headway of sub-urban trains, the only rail transport in

Bangkok and the widening of road surface by reducing the width of medians and sidewalks. These actions discourage public transport users. Moreover, in 1991 the Anand government reduced the tax for vehicle purchase. This, in addition to poor public transport service and the construction of roads/expressways, are major factors in the increase of private vehicle ownership, which occurs at a rate of approximately 1,300 new vehicles per day, including motorcycles.

It could be concluded that government policies and practices for the relief of Bangkok traffic gridlock are not in total agreement. The construction of roads alone cannot solve Bangkok traffic gridlock. This does not mean that the expansion of "road area" in Bangkok is not needed, it does, however, indicate that a balanced development of road and public transport is more desirable and effective in solving Bangkok traffic problems.

3.2 Investment in Transport Projects

The investment in the transport sector from the 5th Plan to the 7th Plan was investigated. During the 5th Plan, the major investment was in the improvement/construction of roads, bridges, and expressways. It should be noted that expressways accounted for 28% of the total investment. Over the 6th Plan, the expressway investment increased to 65% of the total expenditure in the transport sector. Significant investment in public transport, including MRTs, has only been included in the present 7th Plan, with 42% share of proposed total for the transport sector. However, the investment in expressways during this plan is still high, accounting for 28% of the total investment. With only two years remaining in the 7th Plan:1995-1996, it is unlikely that the investment in public transport, particularly MRTs, will reach the planned target.

Over the 5th-7th Plans, the government has included the improvement of public transport as one of the leading policies in tackling traffic problems in Bangkok. However, the investment has been spent primarily for the construction of roads, expressways and bridges, which encourages the use of private vehicles and runs counter to stated policies.

4. FINANCING URBAN TRANSPORT PROJECTS

4.1 Expressways

FES was invested in and is operated by the Expressway and Rapid Transit Authority of Thailand (ETA) with an approximate 27% government subsidy. For the SES, the government changed its financing policy and utilized the Build-Operate-Transfer (BOT) approach for implementation. BOT has been employed for the implementation of expressways in several countries such as Mexico, Italy, and the USA. For the RAE, which is under construction, utilized direct ETA investment, with a 67% subsidy from the government, for project financing. The upcoming Bang Na-Bang Phli-Bang Pakong expressway project will be implemented using the turnkey approach.

In conclusion, the expressways in Bangkok have been/will be implemented utilizing different financing schemes. However, questions which need to be addressed are: Which is the appropriate scheme?, and, Why, if the policy is to support public transport, has the government invested in and/or subsidized expressway projects instead of mass rapid transit

projects?

4.2 Mass Rapid Transit Systems

In Bangkok, present MRT projects consist of Tanayong, Hopewell, and MRTA (Metropolitan Rapid Transit Authority). The Tanayong Skytrain Project is under construction employing a BOT approach, with the provision of right-of-way for the route by the Bangkok Metropolitan Administration (BMA). Tanayong will be responsible for utility diversions within the ROW up to a limit of 500 million Baht ($US 0.04/baht) after which the BMA will cover the costs. The project is also provided with a tax holiday and exemption from duty for imported items.

The Hopewell project is a skytrain and expressway being constructed slowly under the BOT approach. Under this scheme, the State Railway of Thailand (SRT) provides the existing SRT railway right-of-way for construction and operation and in addition will provide the concessionaire with some prime plots of land for commercial development. A tax holiday and import duty relief is also provided.

For the MRTA project, which was originally to be implemented by the ETA, the Anand Government established the MRTA in 1992 under the Prime Minister's Office to undertake a 19 kilometer skytrain project. Later the Chuan Government turned it into a concessionaire project with 11.3 kilometers of the route to be constructed underground. Recently, however, it has been reported that the government might return to its original intention and invest in the MRTA project using the national budget and foreign soft loans. The political uncertainties have caused more than 15 years of delay (including the time the project was under ETA control) in implementing this project.

4.3 Who should Invest in Urban Transport Projects?

4.3.1 Public Sector

It is the responsibility of the government to provide infrastructure at reasonable prices (or sometimes without charge) to the people. However, due to the limited national budget, the use of this budget should be carefully considered to ensure that it is beneficial to most of people. In the case of transport projects, public transport should be considered a priority since it can serve more road users. For this reason, the government should invest in the mass transit projects rather than expressways. However, if the private sector is interested in investing and operating these projects planned by the government, their proposals should be considered carefully to minimize the dis-benefit to the users or the country as a whole.

The public sector operates transport infrastructure with different objectives from those of the private sector. The public sector is the repository for obligations or perceived needs, including police protection, health protection, education, housing, jobs, income and transport; as a means of access to jobs and other activities. Such needs are usually met through public policies designed to provide low cost. For these reasons, the operations of transport facilities may require subsidies since they may not be priced at market or commercial level.

4.3.2 Private Sector

The objectives of privatization are: (1) to reduce the financial burden on the government; (2) to utilize the management skills of the private sector; and (3) to be more responsive to technology transfer, especially "high" technology. An important element of private sector involvement is the allocation of risk between the private and public sectors.

The private sector can participate in project investment through various concession approaches, including Build-Own-Operate (BOO), Build-Own-Operate-Sell (BOOS), Build-Own-Operate-Transfer (BOOT), Build-Operate-Transfer (BOT), and Build-Transfer (BT). The SES is an example of BOT transport project in Thailand.

Another option to attract the private sector is that the public sector may invest in land acquisition and civil works and the private sector is needed to invest in the remaining works. The operation and maintenance should be done by the private sector since it is evidenced that the private sector can operate transport facilities far better and more efficiently than the public sector. This option is similar to "management contracts" which are designed to provide overall management services through a private firm with full responsibility assigned for all activities and operation of the public enterprises.

An important aspect of the private sector investment is that it is driven by maximizing profit or return, which is different from the public sector. To make the maximum benefit of the private sector, the government needs to control the fares/tolls to be at a satisfactory level affordable by system users; in addition, the route alignment must follow the formulated master plan. In the case where the government needs to provide the concessionaire with plots of land for real estate/commercial development in return for maintaining a low fare/toll level, the value capture approach should be reasonably utilized.

However, the study of metro implementation in 16 cities of developing countries by the Transport and Road Research Laboratory (TRRL) has shown that none of them has been implemented by the private sector.

4.3.3 Joint Venture between Public and Private Sectors

This approach is an investment option for the implementation and operation of transport infrastructure by public-private sector partnership. This partnership will minimize problems associated with negotiating private sector ownership arrangements where the private sector takes sole responsibility. The joint venture, where public sector enterprises go into partnerships with private sector companies, could possibly be established in the form of a new company. The joint venture approach may apply to any of the privatization approaches aforementioned.

4.3.4 Possible Sources of Funds

In addition to general revenue taxes, tolls/fares, loans and bonds, the following sources of funds are strongly proposed.

(a) User Benefit Taxes

- Gasoline Taxes

Gasoline consumption in Bangkok is presently about 3.5 billion liters per year. The gasoline price in Bangkok is cheaper than that in other provinces due to less transport costs. If the Bangkok price was increased to at least that of the areas outside Bangkok, the additional funds raised would be about 1 billion Baht per year. It should be noted that some Bangkokians consume bottled drinking water at a higher price than that of gasoline. It is not unreasonable to expect Bangkokians to pay prices for gasoline consumption equal to that of the rest of Thailand.

- Vehicle Taxes

Vehicle taxes are presently collected by the Central Government and then allocated to each province. In 1994, Bangkok received from this source of revenue about 2.8 billion Baht; over 20% of the total revenue of the BMA. An increase in vehicle taxes in Bangkok should be considered so that a reasonable amount of funds could be raised. In addition, an increase in vehicle taxes could result in a reduction of private vehicle ownership and thus reduce traffic congestion to some extent. However, with raising vehicle taxes in Bangkok, some vehicles would be registered away from Bangkok wherever possible, which would reduce BMA's revenue. Therefore, measures in controlling this leakage must be carefully introduced.

(b) Property Taxes

In 1993, the revenues collected from property taxes; Housing and Buildings Tax and Land Development Tax, were 2.1 billion Baht and 0.1 billion Baht, respectively. The Housing and Buildings Tax is in principle levied on the notional rental value of property, with the exception of residential property. This tax rate, which has been in use for about 16 years, is 12.5% of the rental. The revenue obtained from the Land Development Tax is also very modest. In 1993 the average annual tax was about 70 Baht per household which was lower than the minimum wage of 135 Baht per day. These tax rates should be increased and special rates should be applied to the areas where accessibility could be improved as a result of transport projects implementation. This could be done through the process of value capture or benefit assessment.

Benefit assessment technique were employed to capture added value resulting from implementation of the Los Angeles (LA) metro. This benefit accounted for approximately 11% of the total investment for Phase I of the system. The assessment rate is 30 cents per square foot per year for property located within the distances of 0.5 miles and 0.3 miles from the metro station in business areas and suburban areas, respectively.

Sale taxes and payroll taxes, in addition to gasoline, vehicle registration, and property taxes, could also be considered. Sale taxes are used in a number of countries, especially the United States, whereas payroll taxes are utilized mainly in France, Austria and USA.

(c) Benefit Sharing Mechanisms

- Joint Development

Joint development is a project that involves the disposition, by lease or by sale, of transit authority-owned or controlled real property interests, including air rights, which are incremental to direct transit operational need, at or near a station area which, because of proximity to station facilities, have significant potential for commercial, residential, or related development, alone or in combination with adjoining real property interests to further an authority's development related goals and objectives.

The Washington Metropolitan Area Transit Authority (WMATA) reports that its six completed joint development projects produce a guaranteed annual revenue exceeding $1.9 million. The cumulative revenue realized through September 30, 1983 was approximately $6.3 million.

WMATA evaluated two joint development projects: the first at the Bethesda Metro Station Site, and the second at the New Carrollton Metro Station Site. At Bethesda, benefits/costs was found to be 39:1 and 45:1 for WMATA and Montgomery County respectively. At New Carrollton, benefits/costs was estimated at 32:1 and 33:1 for WMATA and Prince George's County respectively.

In Denver, the Denver Regional Rapid Transit District (RTD) has leased air rights over the city's Civic Center Transit Facility to a developer for a minimum air rights rent of $400,000 in each of the first 15 years, plus 38% of the developer's profit after it first deducts a 13.5% return on its cash investment.

System Interface

System interface is defined as a project that involves the direct physical tie-in of pedestrian, vehicular or visual access to transit authority facilities from adjoining private or other public development. Transit authority tie-in facilities could include station mezzanines or entrances, kiss and ride, parking, or bus area. WMATA concluded that:

Potentially significant value can be created by system interface. System interface can positively impact properties adjacent (and in some cases non-adjacent) to Metrorail facilities.

System interface can be mutually beneficial to transit authority and to property owners.

Change in use of portions of affected properties to a "higher" use offering greater economic return (i.e., through higher rents). An example would be the conversion of basement parking space into retail space oriented toward transit users.

More intensive use opportunities created by improved access--convenience, more direct routing, and shelter--generating increased rent potentials.

Ridership amenities from the convenience and shelter provided by system interface. While these benefits will be captured largely by transit users, system interface amenities may help maintain ridership.

- Land Readjustment

Land Readjustment (LR) is an urban development device by which public facilities in a certain area, such as roads, parks and schools, that are necessary for life, are created and/or improved, and individual sites are made easier to use and their site utility is increased by dividing them into more regular shapes with better accessibility. It has been employed extensively in Japan, and Republic of Korea as well as providing an effective tool for improvement of urban areas. LR should be utilized to minimize the problems on land acquisition for the implementation of transport infrastructure. That is, people whose house/land is to be acquired by the government for the implementation of a transport project can still live in the same area. There is no need to relocate to a new location. Based on the LR approach, beneficiaries from a transport project must contribute to the losers by allowing their land plots to be re-plotted in order to accommodate all people in the site. In addition, a portion of land is reserved for commercial purposes. The cost of public utilities development is therefore financed by revenues from sales of the "reserved land".

In Japan, some other sources of funds besides fare revenues are usually utilized for implementing urban rail projects, including government subsidies; contributions from beneficiaries other than the uses of the railway system; and revenues from other business run by the railway enterprise. The government can subsidize the urban rail projects by various schemes, such as: (1) underground rail construction schemes; (2) railway construction corporation schemes; and (3) new town rail construction schemes.

5. INTERACTION AMONG TRANSPORT PLANNERS-ADMINISTRATORS-POLITICIANS

It should mention that the planning of some transport projects in Bangkok was done using the top-down approach: politicians-administrators-transport planners. That is, the project is firstly determined by the politicians and administrators need to follow politicians requirements by directing transport planners to conclude the study as needed. In other words, some projects have been implemented without master planning causing various problems such as multi-level intersections and discontinuous flow of traffic or bottlenecks.

It is true to say that the decision of the implementation of transport megaprojects has in the past depended on the influence of the person in charge. Once the person in charge leaves his post, the projects may be altered or in some cases even canceled.

To avoid the above problems, the bottom-up approach should be considered. Under this approach, transport planners need to formulate a transport master plan taking into consideration future land use plans. This master plan is proposed to administrators and

politicians, respectively, for approval. The approved master plan must then be used for implementation in the future, with or without minor modifications regardless of changes to the government. Besides the appropriate master plan, the administrators should be brave enough to explain to politicians what is right and what is wrong based on the technical points of view.

In Thailand, personnel in transport/traffic field are insufficient. There is a need to increase personnel in this field to cope with the present and future demands. However, only a few students choose to study in this field. Moreover, some of them may work in different fields after graduation where earning potential is higher. A serious problem is that there is a big gap between consulting fees for local consultants and foreign consultants, regardless of their capabilities. For this reason, it can be concluded that there is no incentive to study and work in this field.

6. CONCLUSIONS

This paper has led to the following conclusions:

- Policies in solving traffic gridlock in Bangkok are clear and appropriate; but, some important practices do not correspond to the policies. It is suggested that the policy on "moving passengers" needs to be materialized.

- The national budget has been allocated mainly to the improvement of private transport. It is suggested that more budget should be spent for public transport, particularly MRT projects, which are beneficial to most of people. In addition, user benefit taxes, property taxes and benefit sharing mechanisms are proposed as possible sources of funds for financing urban transport projects.

- Roles of all parties related to transport projects, including politicians, administrators and transport planners are proposed to follow the bottom-up scheme. That is, transport master plans must be formulated by transport planners with the approvals of administrators and politicians, respectively. The master plans must be utilized regardless of who will be in power.

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